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MEMOIR OF SAMUEL S. BUNTING.

Samuel S. Bunting, for many years a member of the Philadelphia College of Pharmacy and of its Board of Trustees, deceased on the 15th of August, 1890, in the 63d year of his age. He was born on the 23d of April, 1828, at No. 913 Spruce Street, in this city. His family were among the early Quaker settlers of Pennsylvania, who, since their arrival from England, have been residents and landowners for several generations near Darby, in Delaware County.

His father, Josiah Bunting, was engaged in the lumber business, at the southeast corner of Eighth and Vine Streets, under the firm name of Bunting & Watson; his junior partner was at one time Mayor of the city of Philadelphia. His mother, Sarah Sellers, was a descendant of the Delaware County family of that name; her father was one of the early promoters of the industry of wire manufacturing in this city.

When Samuel was quite a child, his father retired from the lumber business, and removed to the old family home at Darby, where Samuel resided until he came to Philadelphia, in 1845, at the age of 17 years, as an apprentice to the drug and apothecary business, with Joseph C. Turnpenny, at the northeast corner of Tenth and Spruce Streets.

He received an elementary education at Friends' Monthly Meeting School, at Darby, supplemented by a course of lectures on chemistry and astronomy given by John Jackson, an able teacher in charge of the Sharon Academy for girls, in Darby. It does not appear that he manifested any particular disposition toward the

business of pharmacy, but accepted the position offered to him by Mr. Turnpenny as an opportunity for learning a business which promised him a comfortable maintenance. He graduated at the Philadelphia College of Pharmacy in the class of 1849–50. He was married in 1857, to Anne H. Hibberd, of Upper Darby, at the house in which he afterwards departed from this life. About the time of his marriage he became a partner in business with Mr. Turnpenny, and in 1864 purchased his interest and conducted the store in his own name. He became a member of the Philadelphia College of Pharmacy in February, 1855, and in March, 1856, was elected to its Board of Trustees, serving in that capacity until his decease. In September, 1871, he was chosen Treasurer of the College, and continued to hold that position until November, 1889, when failing health caused him to present his resignation.

In the summer of 1860 he met with an accident by the sudden displacement of the stopper of a large bottle of concentrated ammonia water, a portion of the liquid was thrown into his face, inflicting an injury which threatened a total loss of his sight. From this accident he suffered during the remainder of his life, although recovering in a fair measure his sight, it was never entirely restored, and the nervous shock received told upon his constitutional vigor during the remainder of his life.

In June, 1886, he retired from business, and lived a quiet life at his home in Delaware County, but continued to manifest an active interest in the affairs of this College. In 1889, his health failed rapidly until the peaceful ending of his life in August last.

Mr. Bunting was a man of unassuming manner, his diffidence and modesty obscuring his real worth to those not well acquainted with him. His sterling integrity and the faithful performance of his duties have left their record with all who have had relations with him. The quiet and even tenor of his life, in its simplicity, has left with us a pleasant memorial of one of the old useful and valued members of this College.

His wife, one son and three daughters survive him. C. B.

Nitrite of amyl is commended as the most rational and successful antidote to use where chloroform or cocaine seem to threaten life by their unfavorable action on the heart. A few drops of nitrite of amyl administered by inhalation will be one of the most probable means of restoring the heart's action.—*Jour. Am. Med. Assoc.*, April 5, p. 508.

ON THE ETHEREAL OIL OF POLYGALA SPECIES.

By Henry C. C. Maisch.

Read before the American Pharmaceutical Association, at Old Point Comfort, Va., Sept. 10.

Although the peculiar odor of senega root was probably early noticed, Langbeck (*Beckurts' Jahresbericht für Pharmacie, Pharmakognosie und Toxicologie*, 1881–1882) is the first author I can find whose publication has direct bearing on the subject.[1] He states that a three year old senega root possessed a decided odor of salicylic-acid-methyl-ester or oil of wintergreen. After distilling the root with water he estimated, by means of ferric chloride and comparison of the color thus obtained with an aqueous solution of oil of gaultheria treated in like manner, the amount of oil present to be 0·225 per cent. A twelve months' old root gave a color reaction which pointed only to traces of the oil.

L. Reuter (*Archiv der Pharmacie*, 1887, 227, p. 313) estimated the characteristic constituents of Polygala Senega with the intention of basing thereon an assay of the root. He found southern senega to contain 0·28 per cent., and northern 0·25—0·33 per cent. of the ethereal oil.

The same author (*l. c.*, p. 459 and 549) gives two methods for determining the presence of oil of wintergreen in the root.

"Five gm. of the air-dried root treated with 50 cc. water of about 60° C., should after 15 minutes give a filtrate which, on acidifying with 3 drops of hydrochloric acid and extracting with 50 cc. ether, yields to this sufficient salicylic acid, so that on taking up the residue, remaining after the spontaneous evaporation of the ether, with 20 cc. water of 60° C., and adding one drop of solution of ferric chloride, a distinct violet color should appear."

The second method, to which Reuter gives the preference as the sharpest is as follows:

"Five gm. of the air-dried and cut root are macerated with about 30 gm. ether for ½—1 hour, when the ethereal extract is filtered into a beaker containing 20 cc. water of about 40—50° C., and a dilute solution of ferric chloride added; the aqueous solution assumes a violet color, the supernatant layer of fatty oil and resin having no effect on the reaction."

[1] The presence of a volatile principle in senega root was recognized by Peschier (1821), Feneulle (1826), Dulong (1827), Folchi (1830) and others.

On examining the false or white senega, the root of *Polygala alba*, Reuter obtained evidence of only traces of the oil, while a Japanese senega, obtained of Professor Shimoyama and probably the root of *P. tenuifolia*, did not contain a trace.

Through the kindness of Mr. Theodor E. Melter, of Jacksonville, Florida, Prof. J. M. Maisch obtained some specimens of the herb *Polygala Baldwinii*, which was placed at my disposal. Mr. Melter stated it to be a powerful diuretic, and to have a strong odor of oil of wintergreen. A subsequent quantity consisting of fresh root and herb had spoiled on the road; so I had to content myself with the examination of the air-dry herb alone.

The herb, which had been in Prof. Maisch's possession a short time, showed evidence of 0·08 per cent. of ethereal oil estimated by Reuter's first method, and the colorimetric comparison of the ferric chloride reaction. Although the second quantity spoken of before had become mouldy, it was nevertheless examined when I could not get evidence of even a trace of the oil.

During the next season I will endeavor to obtain some more of this plant, both root and herb, and besides intend to examine, in the same manner, as many of our indigenous Polygalas as I can procure, hoping to be able to report on the subject at the next annual meeting.

ARTEMISIA FRIGIDA, *WILLDENOW.*

By Frederick A. Weiss, Ph.G.

From an Inaugural Essay.

The plant named above is known in Colorado as *sierra salvia*, or *Colorado mountain sage*, and as a medicinally valuable herb has obtained considerable repute throughout the Western States. Originally employed by the "medicine men" of the Western Indian tribes, it was through them made known to the early white settlers of that region. Its constant use in that section, with excellent results, has established its value as a remedy, although it has been but little employed elsewhere. Its medicinal properties are there regarded as being of a very high order, both by the laity and the profession, as a cure for the well-known "Western Mountain Fever." It is given in the form of hot infusion, sweetened to the taste, with the addition of a small quantity of capsicum; which latter, by stimulating absorption, apparently increases its effectiveness. The hot infusion has a diuretic, an antiperiodic and some-

times a mild cathartic action. The fluid extract is now being made quite extensively, but the old preference in favor of the infusion prevails. Good authority recommends its use in convalescing cases of scarlatina and diphtheria, given as a cold infusion [two troy ounces to the pint], one wineglassful as a dose, three times a day, and at bed-time when action on the kidneys is desired.

The herb is growing among the Rocky Mountains, from Colorado to Idaho, at altitudes from 4,500 to 9,000 feet above the sea level, either in dry, sandy localities, among rocks, or in the lower valleys, and occasionally upon the more fertile plains; but it is never found in swampy regions. The plant consists of a small cluster of grayish green leaves, forming a tuft close to the ground, in the midst of which are sent up numerous slender, round, or frequently pentangular, tough and fibrous shoots, rarely exceeding twelve to fourteen inches in height, having the two-fifths ranked arrangement of the leaf. The lower portion of the herb is perennial, while the shoots are annually replaced. The tap root is rarely exceeding five inches in length, and has numerous fibrous rootlets attached. The herb retains its vitality during the summer months despite the fact that it is almost anhydrous. The inflorescence is of the racemose type. When poorly nourished, it becomes a raceme, purely, but under more favorable circumstances develops into a more perfect panicle. Each peduncle is furnished with a soft, velvety bract, and the pedicel is accompanied by a bractlet. The receptacle is surrounded by a dense, closely compact involucre, and contains from twenty to thirty akenes, somewhat resembling Timothy grass seed, but smaller and darker. For medicinal use, the overground portion should be gathered during the early fall, when its medicinal qualities have been found to be the greatest.

An analysis was made, following the method of Dragendorff, the mixture of stems, leaves and flower-heads, as medicinally employed, being first finely ground; the result is given in the annexed table :

ARTEMISIA FRIGIDA.	Per Cent.
Moisture,	12
Ash,	9·5
Petroleum ether extract, containing volatile oil, fat, wax and chlorophyll,	5·5
Ether extract, containing bitter principle,	2·5
Absolute alcohol extract, containing tannin and bitter principle,	2·75
Water-soluble matter, cellulose, etc.,	67·75

The ash consisted of sulphates, phosphates and carbonates of potassium (predominating), sodium (trace), magnesium, calcium and iron, with some silica.

The soft ether extract had a persistently bitter taste; its filtered aqueous solution did not respond to the group-reagents for alkaloids, but with Fehling's solution gave a red-brown precipitate indicating the probable presence of a glucoside.

The alcohol extract was likewise bitter, but less so than the ether extract; the aqueous solution contained tannin, and gave a slight indication of the presence of a glucoside, but not of alkaloid.

By precipitating the aqueous infusion with tannin, treating the precipitate with oxide of lead, drying, exhausting with alcohol, decolorizing with animal charcoal, evaporating, and purifying with ether, a semi-transparent mass was obtained, having a bitter taste, being soluble in alcohol or ether, but almost insoluble in chloroform. Experiments to ascertain its probable glucosidal nature were not made.

CHEMICAL NOTES.

By Henry C. C. Maisch, Ph.G., Ph.D.

Luffa echinata, Roxburgh.—Dymock and C. H. J. Warden (*Pharm. Journ. and Trans.* 1890, xx, 997) by extracting the fruit, freed of the seeds, with alcohol, obtained a body which is probably identical with *colocynthitin*, and also a new compound *luffein*. The latter has such gelatinizing properties, that 0·1 gm. added to 100 cc. water forms a gelatinous mass. Luffein differs from pectin, gum, etc., in that it is soluble in alcohol.

Estimation of Caffeine in Tea.—F. Vité (*Mittheil. a. d. pharm. Inst. Erlangen* No. 3, p. 113–143) simplified the method of Hilger (*Archiv d. Pharmacie* xxiii, 1885, 827) as follows: 5 gms. of tea powder (sieve: mesh width 2 mm.) are extracted three times with 300 cc. water for one hour. The infusion is evaporated to one-fourth its volume and mixed with freshly precipitated hydroxide of lead and coarse sand. This mixture is then evaporated to dryness on a waterbath and the residue transferred to an extraction apparatus, where it is treated with chloroform for three hours. The extract remaining after driving off the chloroform is dissolved in hot water, filtered into a tared crystallizing dish, evaporated and the residue dried at 100° C.

Croton oil.—L. Reuter (*Apoth. Zeitg.* 1890, v, 320, 362) found that the solubility of the neutral glyceride in absolute alcohol is due to or increased by the presence of free croton-oleic acid. The amount of free acid varies with the method of preparation of the oil as also do some other constituents. The oil occasionally contains an albumin modification and a glucoside.

On Lycopodium Oil.—A. Barkowski (*Warschau, Universit. Nachricht.*, 1889. No. 3–4), by triturating the spores of Lycopodium clavatum with glass and extracting with ether, obtained 48·5 per cent. of a neutral, non-drying oil, which is similar to expressed oil of almonds. The oil contains I, a new fatty acid (*lycopodic acid*), $C_{18}H_{36}O_4$. 2 per cent.; II, a phytosterin (vegetable cholesterin), 0·3 per cent.; III, oleic acid, 80 per cent.; IV, arachic, stearic and palmitic acids, 3 per cent.; V, glycerin, 8·2 per cent. The phytosterin is similar or probably identical with that obtained by Hesse from Calabar beans. It crystallizes in hexagonal tablets or silky acicular crystals, which melt at 132°–133° C. The composition is $C_{25}H_{42}O$. Lycopodic acid forms small, silky doubly refracting needles, which melt at 91–92° C. It is an isomere of dioxy-stearic acid.

On Cassia Oil.—According to Schimmel & Co. cassia oil is occasionally adulterated with colophony and petroleum. Ed. Hirschsohn (*Pharm. Zeitschr. f. Russl.*, 1890, xxix, 225–30, 241–44) proposes the following methods for detecting these adulterations: Shake the oil with three times its volume of petroleum ether (sp. gr. 0·650) in a graduated cylinder. In case a diminution in volume should take place, the presence of other ethereal oils, fatty oils, resin or kerosene is indicated; in case of an increment of volume castor oil is very likely present. On shaking the clear extract obtained with petroleum ether with oxide or hydrate of copper, it must not yield a green or blue filtrate. The presence of the color points towards colophony or copaiba balsam. One volume of oil must give with three volumes of 70 per cent. alcohol at 15° C. a clear or only opalescent solution. A turbidity or precipitate makes the presence of petroleum, other ethereal or fatty oils, or larger quantities of colophony very likely. The solution in 70 per cent. alcohol treated with an alcoholic lead acetate solution (70 per cent. alcohol saturated at the temperature of the room), drop by drop, until one-half the volume is added, must not give a precipitate, which would show the presence of colophony or a similar resin.

On the micro-chemical detection and the distribution of dulcite in the vegetable kingdom.—J. Borodin (*Revue des Sciences Nat., St Petersburg*, 1890, No. 1, p. 26–31 and 55) found dulcite in Melampyrum nemorosum. On treating the sections with alcohol, dulcite separates in relatively large prismatic crystals somewhat similar to saltpetre and asparagin. It differs from these (1) in that the crystals are insoluble in a saturated solution of dulcite in water, and (2) on heating to 190° C. dulcite decomposes forming a dark-brown blistery mass. The carbohydrate is found in all parts of M. nemorosum, M. pratense and M. silvaticum and furthermore in four other species, which were taken from an herbarium. The examination in this case was as follows: The leaves were rubbed to a powder between the fingers and extracted with dilute alcohol, and the solution evaporated on a watch-glass; or the leaves were softened in water and then treated as if fresh. Other scrophulariaceous species, like Rhinanthus Crista galli and Scrophularia nodosa, were found to be absolutely free from dulcite. The plants of the order Celastraceæ contain dulcite, which was found in eleven species of Euonymus, three of Celastrus, and one of Schaefferia.

Haplopappus Baylahuen, C. Gay (*Hysterionica Baylahuen, Baillon.*)—Rusby (*Drug. Bull.*, iv, No. 2, p. 39) examined this plant which is used in the province of Coquimbo as an antihystericum and in veterinary medicine for treatment of wounds. He found a volatile oil, a fatty oil, this having the specific odor of the plant, a brown acid resin of sharp taste and tannin. The taste is said to resemble pichi.

GLEANINGS FROM THE GERMAN JOURNALS.

By Frank X. Moerk, Ph.G.

Herniaria glabra.—In addition to the known constituents of this plant herniarin (methyl-umbelliferon) and saponin, Dr. Schneegaus finds also an alkaloid, called paronychine. It is present in minute quantity only, and is extracted by treating the drug with dilute alcohol containing tartaric acid, evaporating, taking up in water, making this solution alkaline and agitating with ether; after conversion into the sulphate it is precipitated by phospho-tungstate of sodium and the alkaloid obtained pure from this precipitate by treatment with baryta and solution in ether. The acetate with a weak solution of cerium sulphate in concentrated sulphuric acid

gives a violet-blue coloration; similar colorations are obtained with bichromate of potassium and ferric salts and sulphuric acid.—*Journ. Pharm. Els.-Lothr.*, 1890, 206.

Artificial musk has the chemical name, trinitro-isobutyltoluol and formula $C_6H(CH_3)(C_4H_9)(NO_2)_3$. It is made by slowly adding pure isobutyltoluol (b. p. 185° C.) to five times its weight of a mixture containing one part fuming nitric acid sp. gr. 1·5 and two parts fifteen per cent. fuming sulphuric acid; the mixture must be chilled to prevent rise in temperature. After standing for some time it is heated for twenty-four hours in a waterbath; addition of water precipitates a nitro-product which must again be nitrated to yield a pure trinitro derivative, this after precipitation by water is recrystallized from alcohol. It forms yellowish-white needles, melting at 96–97°C.; insoluble in water, it is easily soluble in alcohol, ether and chloroform. Physiological experiments by Dr. Hepp, of Mülhausen, made with animals prove its non-poisonous character. The mono- and di-nitro derivatives of isobutyltoluol have an unpleasant odor not at all resembling musk. Trinitro-isobutylxylol has an odor of musk but not at all comparable with the toluol derivative.—Dr. A. Baur, *Chem. Ztg.*, 1890, 1093.

Preparation of oxygen.—Dr. George Kassner noticed that barium peroxide brought in contact with potassium ferricyanide in presence of a little water liberated a gas found to be almost pure oxygen. The evolution of gas is attended with a change of color, the ferricyanide being changed to ferrocyanide; if sufficient water is used, the product remaining in the generator dissolves completely, excepting the impurities of the BaO_2. The reaction for this process is given: $BaO_2 + K_6Fe_2(CN)_{12} = Ba(K_3Fe(CN)_6)_2 + O_2$.—(*Ztschr. f. angew. Chem.*) *Apoth. Ztg.*, 1890, 484.

Sterilizing of drinking water.—Various chemicals have been proposed for this purpose, of which ferric chloride, alum, tannin and potassium permanganate have been used, but it was found that these to be effective had to be used in quantity which imparted an unpleasant taste to the water. Recently Hettinga Tromp proposed hydrogen peroxide as the ideal substance to sterilize water as it imparted neither odor nor taste and was harmless and efficient; one part was added to 3,000—10,000 parts of water. Dr. Altchoefer confirms the efficiency of hydrogen peroxide but asserts that 1 : 1000 must be used; after 24 hours' standing the water microbes as well as pathogenic

microbes (cholera, typhus) will be destroyed. In using hydrogen peroxide 10 cc. of a 10 per cent. solution is added to a liter of water.—(*Cntrlbl. f. Bakt u. Parasitenk.*) *Apoth. Ztg.*, 1890, 485.

Coffee.—To detect spurious coffee in presence of the genuine beans, J. Samelsohn places a number of the beans in ether, separating at once those beans sinking below the surface; if these be broken open along the groove and it be found that the membraneous testa is missing, the artificial product is unmistakably recognized.—(*Ztschr. f. angew. Chem.*), *Apoth. Ztg.*, 1890, 502.

Color reaction of isocholesterin.—This body found in wool-fat by E. Schulze will give the following test: If as little as one milligram be dissolved in 2 cc. chloroform, 10 drops acetic anhydride and two drops concentrated sulphuric acid added a yellow color is produced, passing after a time into a reddish yellow, the liquid also showing a green fluorescence.—*Ztschr f. Physiol. Chemie.*, 1890, 522.

A new method for the saponification of fats, waxes, etc.—The fat, etc., is dissolved in ether and an alcoholic solution of sodium ethylate (C_2H_5ONa) added; after a short time a compact precipitate forms which consists of the sodium soaps, the nature of which allow a rapid filtration and washing. For 100 to 150 gm. fat the sodium ethylate formed by dissolving 10 gm. metallic sodium in 150 to 200 cc. absolute alcohol is necessary, although it is preferable to insure complete saponification to use 2 to 3 times the quantity of sodium dissolved in the above quantity of alcohol; it is also advisable to allow twenty-four hours' time for the saponification. The very difficultly saponifiable wool-fat is very easily saponified under these conditions. Instead of preparing the sodium ethylate, metallic sodium can be added to the alcohol-ether solution of the fat; the sodium becomes coated with a layer of soap, which, upon agitation, easily separates. This method is especially adapted to the study of those fat, etc., constituents, which, after saponification, are soluble in ether, the small quantity of soap dissolving in the ether being removed by agitation with several portions of water.—A. Kossel and K. Obermüller, *Ztschr. f. Physiol. Chemie*, 1890, 597.

Detection of albumenoids.—Traces of albumenoids may be detected by exhausting the substance to be tested with lukewarm water, filtering, evaporating to a small bulk, adding an excess of potassium hydrate and some copper sulphate, and evaporating to dryness; the

dried residue is heated in a porcelain crucible, when if albumenoids were present the odor of trimethylamine is developed. The copper sulphate is added to oxidize sugar, which is generally present and prevent the formation of empyreumatic vapors, which might interfere with the recognition of the trimethylamine odor. This test will serve to distinguish flour and starch.—Dr. M. Dahmen, *Pharm. Ztg.*, 1890, 555.

The color reaction of peppermint oil with acetic, sulphuric and hydrochloric acids (formation of a blue color with red fluorescence) has been investigated by Dr. E. Polenske. If 3 cc. hydrochloric acid sp. gr. 1·124 be agitated with twenty drops of the oil and slightly warmed, a violet color will finally result; if twice the volume of ether be then added, the color will be imparted to the acid, which separated and diluted with an equal volume of water, will give a precipitate of blue color, while a red coloring principle will remain in solution; the red filtrate shows no fluorescence, while the acetic acid or alcoholic solution of the thoroughly washed blue precipitate possesses a red fluorescence. A better yield of the blue color was obtained by adding 4 drops concentrated sulphuric acid to 20 cc. oil, agitating, warming to 40° C., allowing to stand several hours with occasional agitation, adding 80 cc. ether, shaking with two portions of hydrochloric acid of two cc. each, separating the acid and proceeding as above. Addition of ammonia to solutions of the colors causes decolorization, from such solutions ether will extract a brownish substance (free from nitrogen), which, with acids, will produce again the original colors. The ethereal residue exposed to sun-light for a short time is bleached, and then no longer gives the colorations on addition of acids. Peppermint oil exposed for 3 to 4 hours to sun-light does not lose the property of coloring with the acids, but after twenty-five days' exposure it will no longer respond. The substance producing the colorations is volatile in a current of steam, and is, therefore, present in rectified oils.—*Pharm. Ztg.*, 1890, 547.

Solanaceæ Alkaloids.—To ascertain the nature of the pre-existing alkaloids in this natural order, Prof. E. Schmidt had Mr. Schütte carry out a number of investigations, the results of which are here given: young and old belladonna roots (one to two and eight or more years old, respectively) were collected at different periods of the year; upon examination they yielded the following average

alkaloidal percentage: Young roots, Spring 0·127 per cent., Summer 0·452 per cent., Autumn 0.458 per cent.; old roots, Spring, 0·174 per cent., Summer 0·358 per cent., Autumn 0·280 per cent. The alkaloid from the *young roots* consisted entirely of hyosciamine, from the *old roots* chiefly of hyosciamine with very small quantities of atropine. In the *leaves* of the uncultivated belladonna, collected in Spring and Autumn, much hyosciamine with little atropine was found; the ripe *fruit* contained only atropine. The keeping of dried belladonna root does not produce any change of the pre-existing alkaloid, an apparently young root kept for 10 years in a store containing only hyosciamine. The process by which these results were obtained is not published, but it is stated that its reliability was established by adding hyosciamine and a mixture of hyosciamine and atropine to powdered glycyrrhiza and isolating the alkaloids; no change of the alkaloids had taken place.

In stramonium seeds much hyosciamine with small quantities of atropine and hyoscine was found.

Of Duboisia leaves two specimens were examined, one of which contained chiefly hyosciamine, the other only hyoscine.

In the potato plant, in Solanum nigrum, in Lycium barbarum and in Nicotiana tabacum traces of mydriatic alkaloids were found, which possessed certain resemblances to the belladonna alkaloids; these will be more fully investigated.—*Apoth. Ztg.*, 1890, 511.

Tritopine.—In working up large quantities of mother liquor resulting in the extraction of morphine, E. Kauder obtained a crystallized alkaloid differing from all the alkaloids isolated by O. Hesse and which is named *tritopine*. This alkaloid towards sulphuric acid shows resemblance to laudanosine and laudanine. It has the composition $C_{42}H_{54}N_2O_7$. Its salts are easily soluble in water and alcohol.—*Arch der Pharm.*, 1890, 419.

Chelidonium majus.—There are present in this plant besides chelidonine and chelerythrine three other alkaloids called α-homochelidonine $C_{21}H_{21}NO_5$, β-homochelidonine $C_{21}H_{21}NO_5$ and protopine (?). α-homochelidonine and β-homochelidonine have like formulas but differ towards reagents, while the latter with concentrated sulphuric acid gives an immediate violet coloration the former is dissolved without color but after some time becomes yellowish; they differ from chelidonine $C_{20}H_{19}O_5$ by an additional CH_2. The fifth alkaloid protopine (?) in all its properties resembles protopine obtained by

Hesse from opium, it also resembles *macleyine* found by Eyckman in Macleya cordata, and the alkaloid present in Stylophoron root. The alkaloids can be obtained in the following manner: The powdered material is extracted with alcohol containing acetic acid, water is added and the alcohol distilled off, the aqueous solution is filtered, made alkaline with ammonia and extracted with chloroform, the latter is distilled off and the residue treated with alcohol containing HCl, in which the hydrochlorates of protopine and chelidonine are insoluble. The alcoholic solution, after addition of water, is distilled, the aqueous solution diluted with water containing HCl filtered and ammonia added in excess; β-homochelidonine remains in solution and is obtained by extraction with chloroform, the precipitated chelerythrine and α-homochelidonine is treated with ether which removes the chelerythrine.—Dr. F. Selle, *Arch. der Pharm.*, 1890, 441–462.

Veratrum Album.—An alkaloidal examination of this rhizome by George Salzberger revealed the presence of the following alkaloids having the formulas:—Protoveratrine $C_{32}H_{51}NO_{11}$, Protoveratridine $C_{26}H_{45}NO_8$, Pseudojervine $C_{29}H_{43}NO_7$, Jervine $C_{26}H_{37}NO_3$ and Rubijervine $C_{26}H_{43}NO_2$.—*Arch. der Pharm.*, 1890, 462–483.

ABSTRACTS FROM THE FRENCH JOURNALS.

TRANSLATED FOR THE AMERICAN JOURNAL OF PHARMACY.

DATURIC ACID, a new fat acid, has been prepared by M. Gérard, (*Comptes rendus, Acad. des Sci.*, Aug. 11) from the seeds of Datura Stramonium, which yield 25 per cent. of oil when extracted by ether. Purified with petroleum, this oil was of a greenish-yellow color. It was saponified with litharge; then the lead oleates were removed by ether, leaving a soap, from which the author isolated an acid fusing at 55° C. M. Gérard places daturic acid between palmitic and stearic acids, and it presents analogous properties to these. It crystallizes by cold from 85 per cent. alcohol, giving groups of fine needles. It is fairly soluble in cold alcohol, and very soluble in ether and benzin. It has the formula $C^{34}H^{34}O^4$ (old notation).—*Répert. de Phar., Sept. 10.*

ANTISEPTOL, OR IODO-SULPHATE OF CINCHONINE.—M. Yvon (*Nouv. Rem.*) makes this preparation, for therapeutic use, as follows: The sulphate of cinchonine is dissolved in water, using 25 gm. of the salt to 2,000 gm. of water, and the precipitate formed by the use of

an iodated iodide of potassium prepared after the following formula: Iodine, 10 gm.; iodide of potassium, 10 gm.; water, 1,000 gm. The reagent should not be used in excess. The liquor should always be allowed to retain a little of the sulphate of cinchonine. The product is placed on a filter, and is washed with water until the latter no longer contains iodine, after which it should be dried in the open air. The iodosulphate of cinchonine is a well-defined product, which contains 50 per cent. of iodine. It may be obtained crystallized, but for medical uses it is best made in accordance with the formula described.

CHLOROFORMIC DIGITALIN.—In a long article on the active principles of digitalis, Dr. Bardet (*Nouv. Rem.*, July 24) presents his conclusions as follows: 1. In order to feel assured that we may obtain a product of even activity, we should always prescribe chloroformic digitalin. 2. All chloroformic digitalins should be *totally* soluble in chloroform. 3. There is an equality of action between crystallized digitalin and amorphous chloroformic digitalin. German digitalin, or digitalein, are products having so great an inequality of action, that they should be excluded absolutely from therapeutics.

ARISTOL PLASTERS.—M. Cavailles makes these for the Hôpital Saint-Louis by mixing finely powdered aristol with a small quantity of oil, and adding to a mass of lanolin and caoutchouc plaster, previously cooled and made very fluid by the addition of benzin. The benzin is evaporated to a sufficient degree to leave a preparation suitable for spreading upon muslin. The plasters are said to possess the full antiseptic properties of aristol applied in other ways. The author makes plasters of iodol, iodoform, salol and chrysarobin in the same manner.—*L'Union Phar.*, July.

BURNS FROM HYDROFLUORIC ACID.—M. Desvignes (*Répert. de Phar.*, Sept. 10) describes the case of an engraver on glass whose skin was burned while handling hydrofluoric acid. The treatment recommended is to wash the burned parts with a largely diluted milk of lime or magnesia. Ammonia is used, but is usually made too strong, considering the small quantity of hydrofluoric acid present, and the excess of ammonia has too caustic an action on the burned skin.

RAPID PREPARATION OF MERCURIAL OINTMENT.—M. Passérieux proposes a method, which consists of putting a small quantity of

lard into a mortar with the mercury and working it until the extinction of the metal, adding, at the same time, drop by drop, a small quantity of water charged with oxygen. Ten drops of this water are added for each 100 gm. of mercury, this amount being quite sufficient to insure rapid work. The operation is terminated by adding the remainder of the lard.—*Bull. de la S. de Phar. de Bordeaux*, July, 1890.

A NEW EXCIPIENT.—According to the *Jour. de Conn. méd.*, Aug. 7, M. Adam, a Parisian pharmacist, has produced a resin soap "which may be recommended as constituting a new pharmaceutical excipient." The formula is as follows: Resin, 100 parts; carbonate of potash, 30 parts; water, 300 parts. The components are heated to the boiling point, when an effervescence takes place, the product being finished when the disengagement of gas ceases. The heat may be continued, however, until any desired consistency is obtained. The product may be made hard, if necessary. This soap is soluble in water, and does not give a precipitate with marine salt. It may be used as an excipient for a great many drugs, and it has the advantage of being less costly than either vaseline or cerate. It should not be used with metallic salts, owing to the liability to double decomposition. Resin soap works well with mercury and mixes freely with camphor, naphthol, sulphide of carbon, tar, etc. It does not make a homogeneous product with the oil of cade. It appears to have been serviceable thus far in the preparation of some of the remedies used by veterinary surgeons.

ARISTOL.

BY LEOPOLD LARMUTH.

Although aristol has been in the hands of the profession such a comparatively short time, an extensive series of publications of experience of its use has appeared, which, for the most part, quite confirms the very favorable results recorded by Eichhoff[1] of its use. Dr. Brocq[2] reports a remarkable case which he presented to the Société Médicale des Hôpitaux—a patient suffering from extensive superficial epithelioma of the face, extending from the level of the

[1] "Ueber die dermat.-therap. Wirksamkeit einer neuen Jodverbindung, das Aristol."—*Monatsh. f. prakt. Dermat.*, X., No. 2.

[2] *Bulletins et mém. de la Société Médicale des Hôpitaux de Paris*, 1890, No. 13.

mouth to the orbit, the lower eyelid being completely destroyed. The healing action in this case was at once evident, and in five or six days the wound was becoming covered with a firm cicatrix, and at the time the patient was presented to the Society, after use of the remedy for three weeks, only very small wounds remained. Dr. Brocq has also had most gratifying results in other cases in which he has used the drug, especially ulcers of the legs and ulcerated gummata.

Dr. Gaudin[3] reports cases of psoriasis, ulcers, eczema, and chancre, in which he has used the drug with most excellent results; in one case of ulcer of the leg, in which he made comparative experiments with iodoform and hydrarg. biniodide, the result with aristol far exceeded that with the other drugs. In all his cases the marked property of the drug in favoring cicatrization was most striking. Dr. Gaudin applied the drug either dissolved in ether or collodion, or as a dusting powder.

Dr. Hughes[4] has found the drug of much service in all those forms of rhinitis associated with a dryness of the mucous surface, or in which there is a tendency for the secretion to undergo decomposition. He reports twenty-one cases in which he has tried the remedy, and in all the result was most satisfactory; in two cases of specific ozœna the disappearance of the fœtor and the healing was very rapid.

Dr. Löwenstein[5] has treated four cases of ozœna with the drug, and reports most favorably on its effects in one case of specific ozœna. In addition to insufflation of the drug in powder, he painted the ulcerated parts with a solution in collodion flexile. He speaks very favorably of the property the drug has of forming a covering over the diseased surface.

Professor Neisser[6] has made experiments on the action of aristol on bacteria, and also used it therapeutically in thirteen cases of lupus exulcerans, in which he found it of great service. In lichen rubra, soft chancre, and gonorrhœa the results were not satisfactory.

Dr. Schirren[7] has treated ten cases of psoriasis of various forms,

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[3] *Journal des Malad. Cutan. et Syphil. de M. le Dr. Fournier*, 1890.
[4] *Deutsche med. Wochenschr.*, 1890, Nos. 18 and 19.
[5] *Internat. klin. Rundschau*, Wien, Mar., 1890.
[6] *Berlin klin. Wochenschr.*, 1890, No. 19.
[7] *Berlin klin. Wochenschr.*, 1890, No. 11.

vulgaris, guttata nummularis, with aristol, and reports all the cases as cured after, at longest, twelve days' treatment. He applied the drug as 10 per cent. ointment in lanolin or vaselin, or with zinc starch. In none of the cases was any ill by-effect observed.

Dr. Schuster[8] records a case of syphilis of the naso-pharynx, in which he had a very good result, after the use of aristol in powder. The case had been under treatment for some months without any benefit, potassium iodide being administered internally and mercury by inunction. Dr. Schuster reports also a case of psoriasis in which he used aristol with very rapid and good results. He applied a 10 per cent. solution of the drug in collodion flexile.

Dr. Seifert[9] has made an extended trial of the new drug in the syphilis clinic at Würzburg, and reports very favorably on its use. He has used it in ulcers of the leg, lupus, psoriasis, moist condylomata, and suppurating gummata, and in all cases in which it was applied the good result was most marked. Dr. Seifert states that he did not find any iodine in the urine when aristol was administered internally.

Dr. v. Swiecicki[10] has made a trial of the drug in gynæcological practice. He has used aristol in twenty cases, and in all the drug has had a beneficial action. The cases reported comprise endometritis, hyperplasia of the cervix, parametritis, eczema vulvæ, and, after operation for fissure of the cervix, applied as a dusting powder. —*The Medical Chronicle*, July, 1890.

CHINESE CINNAMON.[1]

By Henry Humphreys, Ph C., Hong-kong.

It is generally supposed that Chinese cinnamon is the same thing as cassia, but there is reason to believe that this is not the case. One day I noticed our Chinese manager take a piece of bark out of his pocket, cut a bit off, and put it in his tooth. He explained that it was cinnamon, and that it was used to stop his toothache. I looked at the bark and asked him if it was not cassia he meant. He smiled complacently and remarked: "One does not pay five dollars an ounce for cassia." I have since investigated the matter,

[8] *Monatsh. f. prakt. Dermatologie*, X, No. 6.
[9] *Wien. klin. Wochenschr.*, 1890, No. 18.
[10] *Oest.-ung. Centralbl. f. d. med. Wissenschaften*, 1890, No. 2.
[1] *Phar. Jour. and Trans.*, Aug. 16, 1890, p. 123.

and although unable to identify the "Chinese cinnamon" plant with Ceylon cinnamon, owing to the impossibility of obtaining the flowering branches, the results of my inquiries tend to show that Chinese cinnamon differs very materially from ordinary *Cassia lignea*, if only in the fact that it is certainly obtained from very old wild trees, whereas the cassia of commerce is obtained from cultivated trees only (Ford).

I found the six samples I worked on and which I have sent to Mr. Holmes for further investigation, to differ from cassia in appearance, taste and smell, and to contain little or no mucilage. On the other hand the iodine test gave a similar reaction to cassia. Owing to the costly nature of the bark, I was able to experiment only on very small quantities.

The Chinese call their cinnamon bark by different names and pay more in some cases for an ounce of "cinnamon" than a picul (133⅓ lbs.) of cassia.

A cold aqueous infusion of all six samples yielded with iodine a bluish-black coloration, but with $HgCl_2$ there was no evidence of the presence of mucilage. The aroma of all six came near that of Ceylon cinnamon, but in some cases there was a pungency more consistent with the idea of their being derived from cassia.

One important point, however, I have been able to ascertain is, that "Chinese cinnamon" grows wild in Annam much further south than the West River in the Kwangsi and Kwangtung provinces, where cassia is cultivated.

The Chinese adopt the common name of Kwei for both cinnamon and cassia, but distinguish the two by an additional name; for instance, ordinary cinnamon is Jan Kwei and ordinary cassia Kwei pi.

Chinese cinnamon is never exported, owing to the heavy prices the Chinese pay for it. There are a good many varieties, all of which grow wild in Annam, in the neighborhood of a mountain there, called Ching Fa. The most expensive kinds come from the mountain itself, and are obtained from trees one or two hundred years old. It is said that trees of this age emit a fragrance. The size of one of these trees is from twenty to fifty feet high, and four to five feet in circumference. Annamites, who go in search of these trees, usually carry provisions to last for two months. Owing to the enormous price the Chinese pay the trees are denuded of their bark and consequently die.

Ching Fa Kwei, so-called because it comes from the Ching Fa Mountain, is the best kind, and its cost is about twenty-five dollars an ounce. Chinese doctors say this kind of cinnamon is good for curing and purging disease of the lungs and kidneys, inflammation of the eyes, convulsions in children, toothache, etc. When a piece has actually cured a dangerous disease, it is called Shan Kwei or God's cinnamon, and is held to be invaluable by the Chinese, and if procurable costs from fifty to one hundred times its weight in silver.

Foo Kwei (bitter cinnamon) and *Ye Kwei* (wild cinnamon) are also obtained from the same mountain. An infusion of the former is colorless and bitter, while that of the latter gives a sweet taste and imparts a dark red color to the water.

All the above kinds are very scarce.

Ngoi Ho Kwei.—A very good kind obtained from hills close by the above-named mountain. It is readily procurable at Chinese druggists' shops, and costs from five to seven dollars an ounce. Chinese doctors generally prescribe this kind for sickness.

Ko Shan Kwei.—This is an inferior kind of cinnamon, and is an article of trade; cost fifty cents to three dollars a catty.

All the samples sent to Mr. Holmes are strongest in flavor in the liber or endophlœum.

The liber of this drug in fact agrees with Ceylon cinnamon.

The remarks already made on the subject by various authors may be here summarized.

Wells Williams, in his Chinese Commercial Guide, under the head of "Chinese Imports," gives the following:

Cinnamon (Jan K'wei). "A little is imported into the northern provinces where none of the cinnamon or cassia trees grow. Cochin China produces both these plants, and the true cinnamon has long been sent thence to China both by vessels and travelling traders across the frontier."

Stillé and Maisch (page 476), "A kind of Chinese or Saigon cinnamon of late occasionally met with is in more regular unscraped quills, yields a darker colored powder (than cassia), but has a very sweet and warm cinnamon taste. Its histological structure is very similar to Ceylon cinnamon."

"Pharmacographia" (pages 528–30), "China cinnamon of 1870 comes still nearer to Ceylon cinnamon, except that it is coated. A

transverse section of a quill not thicker than one millimetre exhibits the three layers described as characterizing that bark. The schlerenchymatous ring is covered by a parenchyma rich in oil ducts, so that it is obvious that the flavor of the drug could not be improved by scraping."

The expedition of Lieut. Garnier for the exploration of Cochin China found cassia (?) growing wild in about north latitude 19°. Dr. Thorel also states that it grows in a wild state in the forests of Cochin China. Ford in his West River expedition, 1882, says *C. Cassia* was not met with anywhere in a wild state, nor could any native be found who knew where it did grow wild.

Dumoutier's "Essai sur la Pharmacie Annamite" mentions both the bark of cinnamon and cassia.

BARK OF XANTHOXYLON SENEGALENSE (ARTAR ROOT).[1]

By P. Giacosa and M. Soave.

After a description of the known species of *Xanthoxylon* and of the literature of the subject, the following results are given of the examination of artar root, which presumably belongs to *X. Senegalense*, D. C.

The root is generally cylindrical, somewhat contorted, and covered with bark, the underlying wood is pale yellow with minute white spots, the annual rings are barely visible, the medullary rays are very fine and waving, and meet at the centre, where, however, there is no pith; the wood is very close, tough, hard and heavy, and has neither taste nor smell. The bark is covered with waving, longitudinal furrows; in color it is reddish-brown, with bright, yellow spots, or yellow with grayish patches; it has a peculiar aromatic odor, and a taste which is aromatic at first, then burning, and causes itching of the tongue.

The authors have previously mentioned (1888) the occurrence in a specimen of this bark of a fixed oil, of a neutral, crystalline substance melting at about 120°, and of two alkaloids, the more abundant of which is amorphous; the other, which occurs only in small quantity, crystallizes in large, blood-red needles soluble in hot water.

[1] *Gazzetta*, 19, 303–333. Reprinted from *Jour. Chem. Soc.*, August, 1890, p. 918.

To isolate the alkaloids from fresh specimens of the bark, they are powdered, extracted with 94 per cent. alcohol, the extract condensed by distillation and evaporation to a syrupy consistency, made alkaline with soda, and extracted with ether; on treating the washed and concentrated ethereal solution with hydrochloric acid, it yields an abundant deposit of minute needles soluble in cold water. On the addition of ammonia or soda to the cold, aqueous solution of this hydrochloride, the base is precipitated as a light, amorphous, reddish yellow, flocculent powder, the hot aqueous solution of which on evaporation does not yield the alkaloid previously mentioned as crystallizing in red needles. It would therefore appear that the latter is not a constant constituent of the bark. On purifying the alkaloid by repeatedly combining it with hydrochloric acid, recrystallizing, and decomposing the salt, the first portions of the hydrochloride which separate were found to be more insoluble than the succeeding portions. On collecting the former apart and treating them with alkalies, a perfectly white base is obtained. This appears to be crystallizable, and dissolves in acids forming pale-yellow salts; the *hydrochloride* dissolves with difficulty in water and alcohol, and crystallizes out in pale, yellowish needles which, on heating at 200° darken, and melt at 270°.

Artarine is the principal alkaloid in the bark of artar root, of which it forms 0·4 per cent. It is an amorphous, uncrystallizable, rose-gray powder, which darkens a little on exposure to light; it turns brown on heating at 210°, and melts with decomposition at 240°; when heated on platinum foil, it melts, decomposes, gives off white fumes having an odor of quinoline, chars, and is finally burnt away with difficulty, but without leaving any ash. It shows an alkaline reaction to damp reddened litmus paper, and is converted by acids into golden yellow salts; it undergoes no change by prolonged keeping over sulphuric acid. It dissolves readily in ether, boiling amyl alcohol, and warm acetone, and also, when freshly precipitated, in warm methyl alcohol, only with difficulty in warm chloroform, and not at all in water or benzin. It is sparingly soluble in boiling 98 per cent. alcohol. The *hydrochloride*, $C_{21}H_{23}NO_4$ HCl, may be purified by precipitating its alcoholic solution with an excess of ether. It crystallizes in large, slender needles, occasionally forming tufts or nodules; it is blackened on heating to 60—70°, and melts at 189° with decomposition. It is freely soluble

in methyl alcohol and in acetone, readily in warm chloroform and in amyl alcohol, moderately in warm alcohol, less so in warm water (0·514 per cent. at 14° C.), but is altogether insoluble in ether and in benzin. The presence of free acid considerably diminishes the solubility of the hydrochloride, and of all the other artarine salts. Solutions of the hydrochloride in water or alcohol are inactive to light. There are probably three hydrates of this compound, containing 2, 3, and 4 mols. H_2O respectively; the last of these is obtained by cooling an aqueous solution saturated in the cold; it melts at 194°. The *platinochloride* crystallizes in slender pale yellow needles which do not melt at 290°, and are insoluble in water and alcohol. The *hydriodide* is obtained by the action of potassium iodide on the hydrochloride; it crystallizes in very slender, interlaced, yellow needles which dissolve freely in warm water and alcohol.

Another iodine-derivative, $C_{21}H_{23}NO_4HI_3$, is obtained by treating the cold alcoholic solution of artarine with a solution of iodine in potassium iodide; it forms aggregates of greenish-brown, microscopic needles which are insoluble in water, and only dissolve with difficulty in boiling absolute alcohol. The *sulphate* is a white powder consisting of microscopic needles; it darkens on heating to 60–70°, and melts at 240°. The *nitrate*, obtained by adding potassium nitrate to an aqueous solution of the hydrochloride, is a thick, gelatinous, yellow mass containing a few microscopic crystals. It crystallizes from alcohol in thin plates, a little longer and thinner than those of uric acid, and melts at 212°. The *phosphate* and *arsenate* crystallize in dirty yellow aggregates of microscopic prisms, which are only very sparingly soluble in water; the *chromate* forms very long reddish-yellow needles grouped in tufts; the *hydrobromide*, *molybdate*, *benzoate*, and *salicylate* are yellow, semi-crystalline powders; the *oxalate* and *tartrate* occur in hemispherical aggregates of needles; the *picrate* forms dendritic groups of very bright yellow needles.

The analyses of the compounds of artarine agree equally well with the formulæ $C_{21}H_{23}NO_4$ and $C_{20}H_{17}NO_4$ (berberine); other points of resemblance and distinction between artarine and berberine are as follows:—

Artarine forms yellow salts, the solubility of which is diminished by the presence of acids; it also forms a periodide, and generally

resembles berberine in its reactions. It differs from berberine in being colorless, uncrystallizable, and in the solubility, melting points, and crystalline character of its salts. It also dissolves in sulphuric acid without any discoloration, and is colored blood-red by the action of potassium nitrate and concentrated sulphuric acid. The hydrochloride acquires by the action of chlorine water at most a yellowish tinge which is dissipated on addition of ammonia. The double iodides of potassium and mercury or cadmium give yellowish, flocculent precipitates, and the iodide of potassium and bismuth gives a similar red precipitate, all of which are insoluble in excess of the reagent; phosphantimonic acid only occasions a slight turbidity which disappears in excess. If the formula $C_{21}H_{23}NO_4$ is adopted for artarine, its constitution is probably that of a methylhydroberberine.

The red alkaloid, previously obtained from a specimen of the bark, crystallizes in blood-red needles readily soluble in water, and forms yellow salts when heated with acids; the *hydrochloride* melts at 170°, the *sulphate* at 265°, and the *platinochloride* at 290°. Besides these alkaloids, the authors previously isolated from the light petroleum extract of the bark a neutral, crystalline substance which is either identical with cubebin ($C_{10}H_{10}O_3$) or has the formula $C_{14}H_{14}O_4$. This substance crystallizes in transparent, colorless prisms which melt at 123°, and dissolve readily in warm ether, chloroform, alcohol, and light petroleum, but are insoluble in water. Like cubebin, it is colored dark-red by concentrated sulphuric acid; on the other hand neither acetic nor pyrocatechuic acid was detected among the products of its fusion with potash. It is first colored wine-red by concentrated sulphuric acid and then dissolved; in the presence of potassium chromate, it acquires a dull violet color; it is not affected by potash or ammonia, even on heating. A mixture of sulphuric acid (4 vols.) and water (1 vol.) colors the crystals red and partially dissolves them in the cold; on gently warming, the liquid becomes violet, and the crystals are charred. If sulphuric acid is added to the chloroform solution of the substance, an intense purple red coloration is produced at the points of junction of the two liquids.

A neutral nitrogenous substance of unknown composition has also been isolated; it forms pale-yellow crystals melting at 170°, and its alcoholic solution is colored bright-green by ferric chloride.

SWEET PELLITORY.[1]

By David Hooper.

A Persian drug is annually imported into Bombay in the Spring under the names of *Bozidan* (Persian) and *Mitha-akkalkara* (*Bombay*). Bozidan is also applied to *Caucalis orientalis*, the βουσαιδαν of the later Greek physicians, and *Mitha-akkalkara* signifies "sweet pellitory," *akkalkara* being the Indian term for the root of pellitory of Spain as sold in the bazaars. Dr. Dymock has a notice of this drug in the appendix to his "Materia Medica of Western India," and it is doubtfully referred to a species of pyrethrum in Sakharam Arjun's "Catalogue of Bombay Drugs." Dr. Dymock has been able to examine some freshly imported parcels of the root, and from some specimens of the flowers and fruit, he has identified the plant to be *Tanacetum umbelliferum*, Boissier. The native doctors consider it to be aphrodisiac, tonic, deobstruent, useful in rheumatism and gout, and in enlargement of the liver and spleen. They also regard it as having abortifacient and anthelmintic properties.

The root has some resemblance to pellitory, but it is larger and lighter in color. It is rough and furrowed longitudinally; internally it is hard and whitish, and breaks with a tough, close fracture. The microscopic structure also resembles that of pellitory root. The corky layer is made up of thick-walled cells and oil cells occur in the middle layer of the bark and in the medullary rays. Some of the parenchymatous cells were loaded with granular matter which, however, did not show the sphæroidal character of inulin when the root had been immersed for four months in alcohol. The root was sweetish and mawkish to the taste, with a very slight degree of acridity, and the odor was like chaulmoogra oil, especially when powdered or boiled with water. A proximate analysis of the powdered root separated ether extract 1·0, alcoholic extract 8·6, water extract 25·1, crude fibre 56·9, and 6·8 of ash in 100 parts. The ether extract, having the peculiar odor of the drug, was evaporated to dryness and digested in rectified spirits for several months; this separated a whitish insoluble granular fatty substance, and a light reddish brown liquid. The insoluble portion examined under a microscope was seen to consist of radiating crystalline tufts of wax, tasteless, and neutral in reaction. It dissolved in petroleum

[1] *Phar. Jour. and Trans.*, Aug. 23, 1890, p. 143.

ether, and to some extent in boiling alcohol, solidifying in the cold. It softened a little above 70° C., at the temperature of boiling water melted to a brown liquid, and with sufficient heat it burnt away on platinum foil with a smoky flame. The soluble portion of the ether extract was evaporated; the residue was acid in reaction, and produced a numbing sensation on the tongue, and at the same time caused a copious flow of saliva. This fatty residue was treated with petroleum ether, which dissolved some fatty acid, crystalline and fragrant, and left a brown resin. The resin had the properties of pyrethrin. Besides its action on the tongue, it was soluble in proof spirit, ether, chloroform and bisulphide of carbon; insoluble in ammonia, caustic and carbonated alkalies, and but slightly soluble in cold petroleum ether. It dissolved in nitric acid with evolution of gas, and in sulphuric acid with a reddish brown color and evolving the odor of butyric acid.

The alcoholic extract contained an organic acid in addition to some saccharine matter reducing Fehling's solution, and no traces of an alkaloid. The organic acid was darkened in color with ferric salts, gave an orange precipitate with plumbic acetate, and caused no deposit in gelatin solution. The water extract contained 15 per cent. of a carbohydrate precipitated in a pulverulent form with three volumes of alcohol.

Pellitory root contains 5 per cent. of pyrethrin,[1] with certain oily and fatty matters, about half its weight of inulin, and a small quantity of tannin (?). The sweet pellitory contains a minute proportion of pyrethrin (the entire ether extract amounting to only one per cent.), with fat and wax, an organic acid possessing pigmental properties, glucose and inulin. The sweet pellitory is so named not so much, I should consider, from the amount of sugar it contains as from the small amount of the acrid and pungent principle.

THE PREPARATION OF ALOES IN CURACAO.[2]

The curacao aloes of commerce is produced principally in the three islands of Curacao, Aruba and Bonaire, Dutch possessions in the Caribbean Sea north of the coast of Venezuela. The majority of the plants belong to the species Aloe vulgaris, although it is probable that occasionally the A. spicata is also met with; but, even if

[1] C. J. S. Thompson, *Pharm. Journ.*, [3], xvii, 567.

[2] From the *Chemist and Druggist.*

that is so, no distinction is made between the two plants by the juice manufacturers, and both are boiled down together. In 1885 a few young plants of the East Indian Aloe Socotrina, which yields a juice of much higher commercial value than A. vulgaris, were purchased from one of the German botanical gardens through the intervention of Professor Suringar, a well-known Dutch scientist, and forwarded to Aruba with a view of acclimatizing the Socotrine variety there; but the experiment failed completely, as most of the plants perished during the voyage, and the residue met a similar fate shortly after its arrival. It is not improbable, however, that fresh efforts will be made in course of time to improve the species, and this is an absolute necessity if the industry is to be maintained, for at present the market value of the common Curacao aloes juice has fallen to such a point that in many cases the proceeds is not sufficient to pay the wages of the laborers who cut the plant. Mr. Holmes is of opinion that Aloes Perryi would be the most suitable species to employ for the improvement of the Curacao aloes. The principal commercial use of Curacao aloes was in dyeing, especially in the preparation of Bismarck brown. That color, however, is by no means so much in demand now as it used to be, and as in medicine Curacao aloes is used only for veterinary purposes, the demand has naturally ceased to keep pace with the supply.

There is scarcely a culture which requires less trouble and skill than the propagation of Curacao aloes. The soil need only be cleared of trees and shrubs to be ready for planting. Manuring is unnecessary, and there is no need of fencing the plantation, as the only animals from which the young plants have anything to fear are pigs, which are apt to dig up the roots. The plants are set out in rows, between which a space of about two feet is left open. They grow everywhere, even in the most rocky soil, with remarkable facility. The plants yield their juice after the rainy season, and they are propagated from the young shoots, which sprout up all around the parent plant, and are sold by the thousand. It does not appear that the plants are ever propagated from seed. The flower of the aloes growing in Curacao is of a yellow color, while that of the Socotrine aloes is red. Mr. Van Koolwyk, a gentleman who lived in the Dutch West India islands for many years, gives the following account of the collection and preparation of the aloes juice: The plants are cut some time after the rains have ceased as the juice is

too thick during the dry season, and too watery immediately after the rains. The aloes plant is about 18 inches high, and its leaves spread in all directions. In the island of Bonaire the plants are cut by women, who gather the leaves at the top with one hand while with the other they give a deep circular incision at the base of the crown, thus lopping off all the larger leaves, but leaving a few young shoots to sprout afresh. In Aruba, on the other hand, where the work of cutting is done by men, the entire crown is cut away. In various parts of the aloes field, within easy reach of the cutters, are placed wooden troughs. The cut leaves are placed perpendicular in the trough, and a small tin receptacle is put at the opening. The tins used for this purpose are generally empty butter or lard tins—those commodities being imported in the West India islands from the States. A brown colored juice flows abundantly from the leaves without any further manipulation, and the tin, when full, is emptied out into a wooden cask. The dry leaves are thrown away or used as cattle food.

In some of the aloes fields there is a brick-built furnace provided with a large copper boiler, into which the contents of the cask are emptied and boiled over an open fire under constant stirring. While still hot the boiled juice is poured into the wooden cases, in which it is shipped to the States and Europe. Aloes boiling is perceptible at a long distance by the peculiar odor given off by the juice, an odor which is popularly reputed to be very conducive to health. In many cases the field possesses no furnace, and the juice has to be carted to a common boiling place. One of the largest of these works is situated in the neighborhood of Oranjestad, the capital of Aruba. Here the operation is done by steam, and not over an open fire, as in the fields. The proprietor of these works makes a certain charge for boiling, and occasionally he purchases the raw juice on his own account, and leaves it unboiled until a large supply has accumulated. While the aloes market was yet in a more satisfactory condition carts were sent out from the works to collect the juice in the fields; but that is not done now. The method of making incisions in the leaf and evaporating the juice in the sun, described in certain hand-books, is never followed in the Dutch Indies, as it takes much more time than that actually in use, while the quality of the juice obtained is not necessarily superior. The produce of the islands of Bonaire and Aruba is shipped to

Curacao, the principal island of the group and its trading centre. Hence the drug is only known as Curacao aloes, although the output of the island of Curacao itself is insignificant, the yield being:

	1885. Kilos.	1886. Kilos.	1887. Kilos.
In Curacao,	2,080	500	—
In Bonaire,	5,821	18,640	2,075
In Aruba,	123,115	158,011	189,925

CURACOA ALOES.[1]

By E. M. Holmes, F.L.S.

Curator of the Museum of the Pharmaceutical Society of Great Britain.

During the last month there has been presented to the Society's Museum, by D. F. van Eeden, of Haarlem, specimens of the leaves and flowers of the aloe from which Curacoa aloes is prepared.

In a previous note (*Pharm. Journ.*, **[3]**, xx, p. 562) I pointed out the probability that this variety of aloes might perhaps owe its distinct appearance and peculiar odor to the presence in the island of some other species of aloes as well as the *A. vulgaris*. In subsequent letters, however, Professor van Eeden stated that so far as he could learn only one species of aloes is *cultivated* in the island at the present time, and he kindly promised to obtain flowering specimens of the plant for identification. These specimens arrived during the past month, the leaves being preserved in spirit and the inflorescence in vaselin, so that the color and consistence of the flowers was well retained. These specimens have been examined by Mr. J. G. Baker, F.R.S., of the Kew Herbarium, who is so well known as an authority on the genus. He refers the plant without hesitation to *Aloe chinensis*, Baker.

This species is figured and described in the *Botanical Magazine*, p. 630. The occurrence of a Chinese (?) species as a cultivated plant in the Dutch colony of Curacoa seems so unexpected an occurrence that it seems desirable to quote from Mr. Baker's description of the plant in the *Botanical Magazine*.

"Native country unknown. Trusting to a large extent to garden tradition we venture to identify the present plant with an aloe which was introduced from China by Mr. W. Anderson in 1817, and which was briefly described by Haworth from flowerless specimens in his

[1] From the *Pharmaceutical Journal and Transactions*, Sept. 13, 1890, p. 205.

'Suppl. Plant. Succul.,' p. 45, in 1819, as a probable var. of *Aloe barbadensis*, and is mentioned by name only in Salm-Dyck's monograph or in Kunth's 'Enum.,' iv, 522. It is clearly quite specifically distinct from *A. barbadensis*. The leaves are never more than half the length of those in that species and are spotted more or less copiously on the back and face after the fashion of *Aloe abyssinica*; the raceme is very much laxer and the stamens are very much shorter. We have had it for a long time in the Kew collection, but never, so far as I know, with any definite information as to its native country. The flower has a strong and decidedly unpleasant scent. Its affinity is with *A. barbadensis*, *abyssinica* and *consobrina*."

A full description of the plant is given both in the *Botanical Magazine* and in Mr. Baker's paper on "Aloinæ" in the *Journal of the Linnean Society*, vol. xviii (1881. p. 161). In this paper the name *Aloe barbadensis*, Mill., is sunk under that of *A. vera*, L.

From the above statements it would appear that the Curacoa aloe plant is nearly allied but yet specifically distinct from *A. vera*, L. (*A. barbadensis*, Mill.), so that if it can be shown that the plant cultivated in Barbadoes is the true *Aloe barbadensis*, Mill., the specific difference might go far towards explaining the characteristic odor and appearance of Curacoa aloes as compared with the Bardadoes aloes of commerce.

A. vera, L. (*Aloe barbadensis*, Mill.), is a native of the Mediterranean region, although now widely disseminated in the warmer regions of the globe, and there is a variety of it, *littoralis*, Kœnig, found on the southern shores of eastern India, which is stated in Baker's monograph (*Journ. Lin. Soc.*, xvliii, p. 176) to come near to *A. chinensis*, Baker.

In the absence of more definite information, therefore, it may be assumed that the *Aloe chinensis* cultivated in Curacoa was probably carried there from the Dutch East Indies; although Ligon, "History of Barbadoes," London, 1673, p. 98, speaks of the plant as if it were indigenous in A.D. 1647–1650, about twenty years only after the arrival of the first settlers.[2]

On the other hand no aloe is known as a native of America.

The two specimens received from Professor van Eeden differ slightly from the description given of *A. chinensis*, Baker, in the following particulars:

[2] *Pharmacographia*, 2d ed., p. 681.

The leaves have a purplish color (due to the action of the spirit employed to preserve them?). The anthers (but not the filaments) are exserted. Each of the segments of the perianth have three purplish lines extending from base to apex. The three outer segments are somewhat acute, and the inner distinctly obtuse. The color of the leaves and the apex of the perianth segments are not, however, alluded to in Mr. Baker's description.

The aloes of the Arabian coast imperfectly described by Forskäl in 1775 have apparently never been refound, and the distribution of those on the east coast of Africa is not accurately known, so that if due allowance be made for the changes that are apt to take place in the position of labels in even the best regulated gardens, *A. chinensis* may quite possibly be found to be a native of the coast of Africa, Arabia or India.

Probably several species afford the aloes which find their way to Bombay and Aden,[3] and varieties of a species nearly allied to *A. vera* are probably used for this purpose. This opportunity may therefore be taken to express the hope that Indian botanists will endeavor to clear up the mystery which still surrounds the botanical source of the aloes produced on the shores of N.E. Africa, Arabia and India. At the present time there is an aloe entering British commerce under the name of *Socotrine* aloes, and apparently imported from Zanzibar, which has an odor resembling that of Barbadoes aloes, and like it gives a crimson color with nitric acid, but of the geographical and botanical source of which nothing is accurately known.

The species already described in Baker's monograph as occurring in the regions above mentioned are: *A. Schimperi*, Todaro, p. 159, *A. macrocarpa*, Todaro, *A. commutata*, Todaro, *A. Abyssinica*, Lam., all from Abyssinia; *A. crassipes*, Baker, between Suakin and Berber; *A. constricta*, Baker, S.E. Tropical Africa, and *A. tenuifolia*, Lam., near Zanzibar. But, with the exception of *A. Abyssinica*, I am not aware that any of these species have been stated to yield commercial aloes.

An ointment for chapped hands is recommended in *Provincial Med. Jour.*, consisting of menthol 15 gr., salol 30 gr., olive oil ½ drachm, and lanolin 1½ oz. It is said to alleviate the pain on the first application.

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[3] *Pharm. Journ.*, [3], xi, p. 733, "Jaferabad Aloes," *ibid.*, p. 121, "Musambra Aloes."

ACTION OF SULPHURIC AND NITRIC ACIDS ON ALUMINIUM.[1]

By A. Ditte.

When aluminium foil is placed in sulphuric acid of 2·5 per cent., it at first seems to undergo no change, but after a time the surface loses its polish and becomes matt, and bubbles of gas appear and increase in quantity as the surface becomes rougher. Eventually the aluminium dissolves completely. In a vacuum, the phenomena are similar, but follow one another more rapidly, the air condensed on the surface being given off first, followed as soon as the pressure is low by the hydrogen liberated by the action of the acid. Like amalgamated zinc, the aluminium is attacked immediately on its immersion in the acid, but the surface becomes covered with a film of hydrogen, which prevents further action.

If the sulphuric acid is mixed with a small quantity of any chloride with a heat of formation greater than that of aluminium chloride (platinum, gold, copper, mercury), the evolution of hydrogen is much more rapid. The chlorides of iron, zinc, etc., have no such effect.

In presence of traces of the active chlorides, the evolution of hydrogen is at first rapid, but after a time it slackens, and a white deposit of basic aluminium sulphate, $2Al_2O_3,SO_3$, is formed, and increases in quantity until the whole of the aluminium has been dissolved.

Aluminium, under atmospheric pressure is not attacked by a solution of aluminium sulphate, but in a vacuum, air is first disengaged from the surface of the metal, and the latter is then converted into the basic sulphate with evolution of hydrogen. The same change takes place readily even under atmospheric pressure if a trace of one of the active chlorides is added.

The displacement of copper from copper sulphate by aluminium is an exothermic change, but does not take place under ordinary conditions even in presence of free acid. After prolonged contact, the aluminium is slowly attacked, the rapidity of the reaction increasing as the surface of the metal becomes roughened. In presence of a trace of one of the active chlorides, the deposition of copper is much more rapid, even in absence of free sulphuric acid.

[1] *Compt. rend.*, 110, 573 and 782. Reprinted from *Jour. Chem. Soc.*, July, 1890, p. 701.

The same explanation holds in all cases where the aluminium does not readily enter into a reaction which would be exothermic. The surface of the metal becomes covered with a thin layer of gas, which prevents further change, but which can be removed by reduction of pressure or by the roughening of the surface of the aluminium in consequence of the deposition of another metal upon it.

The action of nitric acid and nitrates on aluminium, like the action of sulphuric acid and sulphates, is impeded by the formation of a film of gas on the surface of the metal. If the action takes place in a vacuum, or if the liquids are heated, dissolution of the metal takes place much more rapidly. Very dilute nitric acid yields nitrogen, nitric oxide and ammonia. Nitirc acid of 3 per cent., mixed with a small quantity of platinum chloride, dissolves aluminium with very slight evolution of gas and formation of considerable quantities of ammonium nitrate. Aluminium dissolves in a solution of the normal nitrate, especially on heating, with evolution of hydrogen and formation of the basic nitrate $2Al_2O_3,N_2O_5,10H_2O$. At the ordinary temperature, dissolution takes place very slowly, but the action is somewhat more rapid in a vacuum. The decomposition of water by aluminium would result in the formation of the hydroxide and hydrogen, either of which can form a protecting film on the surface of the metal. In presence of any salt which will dissolve the aluminium hydroxide, the metal is gradually attacked. Salts which do not dissolve alumina have no influence on the change.

MONOCALCIUM PHOSPHATE.[1]

By I. Stoklasa.

Monocalcium phosphate, $CaH_4(PO_4)_2 + H_2O$, was prepared by dissolving pure dicalcium phosphate in 31 per cent. phosphoric acid, and recrystallizing. It was then washed with absolute alcohol and ether, and dried. Washing with ether only (Erlenmeyer, Birnbaum, Wattenberg) never removes the free phosphoric acid completely, so that if prepared in this way it may contain several per cent. of free phosphoric acid. The presence of the latter may be proved, either by treatment with absolute alcohol, or by dissolving the salt completely in water and estimating volumetrically with deci-

[1] *Listy Chem.*, 13, pp. 203, 240, 273. Reprinted from *Jour. Chem. Soc.*, July, 1890, p. 695.

normal potash in the presence of methyl-orange. Alcohol containing only small quantities of water decomposes monocalcium phosphate. The author finds that even the purest preparations decompose in closed vessels spontaneously, so that about 0·05 of free acid is formed in a month.

Monocalcium phosphate is not hygroscopic, as usually stated, especially by Birnbaum and Packard. It attracts some moisture in an atmosphere saturated with aqueous vapor, but loses it again in dry air. The hygroscopic nature of the preparation observed by the authors quoted above is, as the author shows, due to the presence of free phosphoric acid, of which at least 0·2 per cent. must have been present in Birnbaum's specimen. Steam at 80° decomposes monocalcium phosphate. With regard to the very discrepant statements as to the decomposition of monocalcium phosphate by cold water, the author has treated pure preparations with varying quantities of water, and gives his results in a tabular form; the decomposition being represented by the general formula $a CaH_4(PO_4)_2,H_2O + H_2O = (a - 1)CaH_4(PO_4)_2,H_2O + CaHPO_4 + 2H_2O + H_3PO_4$. For example, for 1 part of salt and 1 part of water $a = 4$, and, therefore, the quantity of undecomposed salt going into the aqueous solution $(a - 1) = 3$, 26 per cent. of the salt being decomposed in the above manner. With increase in the quantity of water, more salt goes into solution, and when 1 part of salt is treated with 200 parts of water, the decomposition is very small, whereas the solution is complete; here $a = 1024$, and from this only 1 part is decomposed = 0·1 per cent. The decomposition is regular, for, whereas, for the proportion of 1 salt : 1 water, the quantity of free phosphoric acid formed = 7·51, for 1 salt : 25 water, that quantity becomes one-half this = 3·75, and for every increase of 25 parts of water again one-half of the previous amount. The salt dissolves in 200 parts of water to a clear solution, and at this point it becomes impossible to prove the existence of the free acid, which would indicate decomposition. Above this limit the monocalcium phosphate is re-formed from its products of decomposition—dicalcium phosphate and phosphoric acid.[1]

Free phosphoric acid, added to monocalcium phosphate solutions, prevents their decomposition. If we add to monocalcium phos-

[1] Probably a state of unstable equilibrium sets in between these three substances, if Mendeléeff's theory of solution is correct.—B. B.

phate such a quantity of free phosphoric acid as would be formed by the decomposition of the salt, no decomposition takes place; for example, for 1 salt : 1 water, this quantity will be 7·5 per cent., as seen from the result stated above. If Erlenmeyer finds the solubility of the salt 1 : 100, it follows that the presence of 0·4 per cent. of free phosphoric acid in his salt had prevented the decomposition and increased the solubility.

The author's conclusions as regards the solubility of superphosphates and disuperphosphates in water, are of technical interest.

FREEZING OF COLLOÏDAL SOLUTIONS.[1]

By N. Lubavin.

The investigations of Pfaff, Geiger and Payen on the freezing of colloïdal solutions have been overlooked by subsequent investigators of colloïdal solutions, especially Graham and Van Bemmelen. The author finds that from some of such solutions the substance dissolved is completely or partly separated after freezing, whereas in the case of others the precipitate again passes into solution A solution of colloïdal silicic acid, obtained by mixing soluble glass with hydrochloric acid in aqueous solution, was divided into two parts, one of which was exposed to a temperature of 7–10° for two days after which it was exposed to the temperature of the laboratory (+ 15°) for two days. From the frozen solution as much as 96·96 per cent. of the silica was separated by filtration, whereas the original unfrozen solution yielded only 0 72 per cent. of insoluble silicic acid. This is not in contradiction with Graham's statement, that the stability of a colloïdal solution of silicic acid increases with decreasing temperature, for, according to Graham, more concentrated solutions are more easily coagulated. Indeed, on freezing, gradual concentration takes place, owing to the separation of ice, so that the coagulation is accelerated. A colloïdal solution of antimony trisulphide was prepared by Schulze's method, namely, saturating a solution of one part of tartar-emetic in 200 parts of water with hydrogen sulphide. Nothing separated from the original solution, even when it was allowed to remain for months at the ordinary temperature; whereas from the same solution, after exposure to a temperature of — 6° for 29 hours and

[1] *J. Russ. Chem. Soc.*, **21**, 397–406. Reprinted from *Jour. Chem. Soc.*, July, 1890, p. 685.

subsequent thawing of the ice, complete separation of the antimony sulphide took place. When a very large quantity of the same solution was exposed to a low temperature, the separation was not quite complete. A colloïdal solution of copper sulphide was obtained by the action of hydrogen sulphide on copper glycollate. The separation of the sulphide was incomplete, although the solution was kept one day at — 6° and one day at — 19°. Nothing separated out at the ordinary temperature. Colloïdal solutions of ferric hydroxide, obtained by the dialysis of different preparations of basic chloride, sometimes remain uncoagulated by freezing, sometimes are partly coagulated. This depends on the purity of such solutions, and partly, perhaps on the rate of cooling. Solutions of potassium ferric tartrate behaved in a similar manner. One part of starch was dissolved in 100 parts of boiling water, and the solution was kept at a temperature below zero; flocks separated, as shown already by Payen, but the separation was incomplete. It was found that starch solutions which had been subjected to freezing are much more easily and quickly filtered than the same solutions not frozen, so that this process might be used for the better filtration of slimy liquids and precipitates. Neither white of egg nor milk is coagulated, even on freezing at — 15° to — 20°. The fact that peat falls to pieces after being frozen is explained by the author on assumption that it contains colloïdal substances, which are coagulated by freezing.

THE EFFECT OF FREEZING UPON IMPURITIES CONTAINED IN WATER.

The Massachusetts State Board of Health (June, 1890,) publish experiments with seventy-six samples of water, and 336 samples of ice from fifty-eight localities to answer the above question.

In ice from polluted sources compared with water from the same, the experiments showed:

(1) That in the ice the color and salt had been removed.

(2) That all but 13 per cent. of the other impurities of the water, as shown by chemical analysis, had been removed.

(3) The number of bacteria in the cubic centimetre were: For *snow* (one sample), 1,246; for *clear* ice (part of the same cake as above), 6; for clear ice from an unpolluted source, 0.

(4) The average of 12 samples from most polluted sources, 138

The number of bacteria varied much in different parts of the same cake.

From the examinations which have been made, it appears probable that when ice forms in the surface of a pond or river a considerable part of the impurity in the water near the surface is entangled in the first inch or less in depth, and that the ice which forms below this first inch contains but a very small percentage of the impurities of the water. If snow falls upon the thin ice, causing it to sink so that the water from below saturates the snow, it will freeze without purification; or if rain falls upon the snow and freezes, the ice thus formed contains the impurities of the snow and of the rain water and of whatever else may have settled out of the air. The method often pursued, of flooding the ice of a pond or river, by cutting holes through it, gives a layer of ice as impure as the water of which it is formed.

The purifying effect of freezing is greater upon substances in solution than upon those in suspension. This is confirmed by the fact that a large part of the organic matter, one-half or three-quarters, and sometimes more, that is found in good ice is of particles in suspension, and is readily removed by filter paper.

From the average of all the water and ice used for ice supplies, which they have examined, they find: The organic impurities of snow ice (the sum of the ammonias) = 69 per cent. of the impurities of the water. The organic impurities of all the ice (except snow ice) = 12 per cent. of the impurities of the water. The organic impurities of clear ice = 6 per cent. of the impurities of the water. The *color* of waters was removed by freezing. The *salt* of the waters was nearly removed by freezing.

Of bacteria there were: 81 per cent. as many in *snow ice* as in the waters; 10 per cent. as many in *all other ice* as in the waters; 2 per cent. as many in *clear ice* as in the waters.

The results obtained lead to the conclusions: That while clear ice from polluted sources may contain so small a percentage of the impurities of the source that it may not be regarded as injurious to the health, the snow ice, and any other, however clear, which may have been obtained by flooding, is likely to contain so large a percentage of the impurities of the source, and, with these impurities, some of the disease germs which may be in the source, that the Board feels bound to warn the public against using ice for domestic

purposes that is obtained from a source polluted by sewage, beyond that which would be allowable in a drinking water, stream or pond, and that in general it is much safer to use for drinking water and for placing in contact with food that portion of the ice that is clear. —*Public Health.*

BRITISH PHARMACEUTICAL CONFERENCE.[1]

On Monday evening, September 1, the proceedings of the British Pharmaceutical Conference, at Leeds, commenced with a very numerously attended reception, held by the President, supported by other officers of the Conference in the Philosophical Hall, Park Row. After a short interval, during which the greetings of friends and new introductions were interspersed by inspections of the many interesting objects in the Museum of the Institute, supplemented by special exhibits of microscopes and electric apparatus, most of the company adjourned to the Lecture Theatre. There an entertainment consisting of some capitally executed songs and recitations had been provided, and this was followed by a lantern display of some very artistic views of the Wharfedale and other districts. The gathering was a most successful one, and the arrangements made were fully appreciated by the company.

The next morning, a few minutes after ten, the chair was taken in the theatre of the Philosophical Hall by the President, Mr. Charles Umney, and Mr. Richard Reynolds, in a few well-chosen words, tendered the Conference a hearty Yorkshire welcome to Leeds. A list of the delegates deputed by various associations to represent them at the sittings of the Conference was read, and after reference had been made to letters of apology that had been received from Professor Bentley, Professor Attfield and others, the ground was left clear for the regular business.

The President then called upon the senior Honorary Secretary, Mr. W. A. H. Naylor, to read the report of the Executive Committee. This document commenced with an expression of satisfaction at the maintenance of the prestige of the Conference and its continued prosperity. It may be remarked, however, that neither on this occasion, nor on several previous ones, has the Committee presented any statistics to show the numerical relations of the membership to this prosperity, and these are hardly revealed by an examination of the Financial Statement. The first event referred to in the report was the resignation by Dr. J. C. Thresh, in November last, of the office of Honorary General Secretary, the Committee recording its sense of the valuable services rendered by him during the five years he had held the office. This was followed by the statement that Mr. F. Ransom, F.C.S., had been selected to fill the vacancy. Allusion was also made to the death of Mr. Smeeton, a Vice-President, and the consequent changes. Another subject was the publication of an Addendum to the Unofficial Formulary in January, and the report also contained some words of congratulation upon the recent appointment of a committee of pharmacists to assist the Pharmacopœia Committee in preparing an Addendum to the British Pharmacopœia. As this Committee has been appointed by the Council of the Pharmaceutical Society at the instance of the Medical Council,

[1] From *The Pharmaceutical Journal and Transactions*, Sept. 6, 1890, p. 281.

it is regarded as a distinct advance towards a recognition of the claims of pharmacy to be represented in the settlement of questions relating to the Pharmacopœia. Among other items mentioned were the efforts that have been made to increase the membership and the grant of money in connection with research.

The Honorary Treasurer, Mr. W. Martindale, then read the Financial Statement for the year ending 30th June. From this it appeared that the money received during the year had amounted to £672 3*s.* 9*d.*, the principal items being £527 1*s.* 1*d.*, on account of members' subscriptions, and £135 on account of the Year-Book. The income from subscriptions, therefore, shows a slight decrease as compared with the previous year. As, however, the expenditure has also been somewhat less, the net result this year is a slightly increased balance in favor of the Association.

The President then proceeded to deliver his address, choosing for a subject Fashion in Medicine. In a few words of preliminary justification he said it could not be contended that medicine, striving year by year to become a less inexact science, knows no fashion, though it might be urged that it possessed a license for adopting fashions without parallel in any other profession, due to the rapid strides of science. The first fashion referred to was the modern disposition to replace in prescribing the remedies familiar to a former generation by new medicaments. A legion of new crystalline and resinoid principles have been adopted to the almost entire exclusion of the crude substances from which they are prepared, whilst even alkaloids have in many instances given place to synthetically prepared compounds. Certain drugs, as, for instance, opium and cinchona, are as much relied on as they were half a century ago, but they are standardized now to contain a definite amount of chemical constituent, so that the physician is enabled to use them with precision. On the other hand, some drugs, such as jalap, scammony, aloes, and gamboge, are not prescribed so frequently as formerly, and this, to some extent, has been consequent upon a want of uniformity in their quality. Another change of fashion has been in the medicaments used as external applications. Lard as a basis for ointments has been displaced by hydrocarbons or the more easily absorbed wool fat, whilst plasters are now relatively seldom ordered and the oleates of zinc, mercury and bismuth have become familiar. Concentrated percolates of the more potent drugs are also now used for external application, elegant examples of which are seen in the official liniments of aconite and belladonna and the chloroformum belladonnæ of the Unofficial Formulary. Other preparations, such as gray powder, antimonial powder, and green iodide of mercury are in less esteem than formerly, because of their want of uniformity. But although the legitimacy of most of the changes was acknowledged, the speaker could not overlook the prevailing fashion of discarding antiquated, though well-tried remedies, in favor of newly-introduced drugs, and mentioned that at the recent meeting of the British Medical Association an eminent therapeutist had denounced this rage as fatal to accuracy of observation and precision of treatment. The next fashion referred to was that of prescribing medicine in the most concentrated form, regardless of potency, and it was described as a practice not without danger to the public. But it was suggested that this has been largely brought about by the pharmacist, and it was pointed out how, ignoring

the official standards which embody the best skill and knowledge in dealing with drugs and menstrua, concentrations two or three times over and above those that can with safety be practised are now an every-day requirement. Then came the fashion of prescribing ready-made physic, which was said to be increasing to such an extent as to be positively alarming and was denounced as a delusion and a snare to those who desire to retain the art of orthodox prescribing. The last fashion in medicine particularized, was the injudicious selection by the public of medicine to be used as household remedies and the preference displayed for those covered by a medicine stamp. By this practice, the speaker said, the medical art is deprived of much opportunity, pharmacy undermined, and the public not benefited, but on the contrary greatly damaged. Some of these preparations, it was admitted, are simple in their nature, safe in the hands of the public, and not inappropriate as household remedies; but others, it was contended, are unsuited as remedies except in the hands of a medical practitioner, while many of them are of such composition that they should not be sold except under the restrictions that accompany the sale of substances included in the poisons schedule and the Pharmacy Act. In 1860 the revenue from medicine stamp duty was £43,000, whilst for the present year it has been computed at £220,000; in the same time, however, the vendors have only increased from 10,000 to 23,000, indicating that the average sales by each vendor have practically doubled. The amount paid by the public annually for stamped medicines was estimated at not far short of £1,500,000, only a portion of which, if diverted into the channels of legitimate medicine would involve great advantages to the medical profession and pharmacy. After referring to the demoralizing effect of the medicine stamp law through the facilities it affords for obtaining from a grocer or stationer supplies of opiates that would be refused by the pharmacist, the President expressed the opinion that the time has come when the medicine stamp should be abolished and when the question might be raised whether, in the interest of the public, the compounding of proprietary medicines might not be placed under restrictions similar to those which obtain on the continent. A congratulatory reference was then made to the recent appointment of a committee of pharmacists to advise the Pharmacopœia Committee of the Medical Council, and the address concluded by an appeal to pharmacists to assist in counteracting the depressing influence of the cloud that hangs over pharmacy by individually and collectively seeking to maintain and advance all matters having a scientific bearing upon this art.

At the conclusion of the address, which was listened to with close attention, and evoked repeated demonstrations of approval, Dr. Thresh proposed a vote of thanks to the President, which was carried by acclamation.

The reading of papers was then commenced with the report of the Unofficial Formulary Committee, presented by Mr. W. Martindale as its Chairman. The report simply recorded the publication at the end of last year of an Addendum to the Unofficial Formulary, and stated that the work of the Committee was at present in abeyance, pending the issue of the expected Addendum to the British Pharmacopœia.

Hyoscyamus.—In a very interesting paper Mr. Gerrard gave the results of a number of experiments extending over a period of four years and having for

their object to determine the grounds, if any, for the prevalent belief in the superiority of biennial henbane over annual. The investigation was made with specimens of both kinds of henbane grown in Middlesex, Sussex and Lincolnshire, and the parts of the plants used were the leaves and tops of the annual variety, and the first year's leaves and roots and the second year's tops of the biennial kind. From a table showing the yield of alkaloids from 1,000 parts it appeared (1) that annual henbane leaf, biennial henbane first year's leaf, and biennial second year's tops have practically the same alkaloidal value; (2) that biennial henbane first year's root contains two and a half times as much alkaloid as the leaves or tops of either variety; and (3) that the locality of growth does not influence the amount of alkaloid formed. It would seem, therefore, that the preference shown for biennial over annual henbane leaves is not well founded. Mr. Gerrard added that the biennial root yields with rectified spirit an excellent extract, comparatively free from objectionable taste and odor, which could be standardized with ease of a strength that the dose would be one-third of that of the present official extract.

Commercial Alkaline Sulphites, by Mr. C. H. Bothamley.—The author commenced by pointing out that besides the normal sulphite, represented by the normal formula M_2SO_3, and the hydrogen sulphites or bisulphites represented by the formula $MHSO_3$, a third class has recently been brought prominently forward under the name "meta-sulphites" and "meta-bisulphites." These are not, however, new products, as erroneously supposed, but were described many years ago by Muspratt, who termed them properly "anhydro-sulphites." They have the general formula $M_2S_2O_5$, and may be regarded as derived from two molecules of hydrogen sulphite with elimination of a molecule of water. Potassium bisulphite does not appear to be an article of commerce, whilst four samples supplied as sodium bisulphite contained respectively only 8·1, 34·14, 22·3 and 39 per cent. of sulphurous anhydride, the theoretical quantity in the anhydrous salt being 61·54 per cent. The difficulty in preparing these salts arises from the fact that even in solution the bisulphites pass quickly into the anhydrosulphites. The anhydrosulphites are met with in commerce in large, well-formed crystals, which at first are transparent, but soon lose some sulphurous anhydride and become quoted with a white film, after which the salt undergoes little alteration. Three samples examined gave 52·54, 56·02 and 57·42 per cent. of sulphurous anhydride, the theoretical quantity being 57·63 per cent.

Strophanthus hispidus, by Mr. E. M. Holmes.—The paper emphasized the fact that the variety of strophanthus seeds originally used by Professor Frazer, and therefore the kind from which the medicinal action described by him might be expected, came from East Africa, and differs from that yielded by the typical *S. hispidus* of West Africa. He thinks, therefore, that the commercial seeds imported from West Africa should not be employed pharmaceutically until it has been ascertained that they possess the same physiological properties as those upon which the reputation of the drug was founded. The seeds corresponding to those used by Professor Frazer were described as having a hairy surface, with the hairs pointing in one direction and appearing fawn-colored or greenish as the apex or the base of the seed is presented to the light. Mr. Holmes further mentioned that ouabain, which is said to differ

only slightly in chemical composition and therapeutic action from strophanthin is now manufactured from a smooth variety of strophanthus seeds, instead of the wood from which it was first prepared. At the conclusion of the reading of this paper a short note by Mr. T. Christy was read, accompanying two leaves of a plant grown at Sydenham from seed similar to that from which M. Arnaud has separated ouabain. In the discussion that followed, Mr. Martin bore testimony that the results upon which the reputation of the drug was founded were obtained with preparations of greenish-fawn seeds and that other kinds have not produced such satisfactory effects.

Nitrites in Potable Waters, by Dr. J. C. Thresh.—The author remarked that although a quantitative estimation of the nitrites did not seem to be of much assistance in determining the quality of a water in the present state of knowledge, probably no analyst felt he had made a complete examination of a water unless he had made at least a qualitative test for them, and if he found indications of them he justly regarded the water with suspicion. But a series of experiments Dr. Thresh has been making on the changes in composition of certain waters kept under varied conditions have led him to believe that before long the study of these changes would be of great aid in forming a judgment of the quality of a water, and especially of such as the analyst now only reports to be suspicious. One of these changes is the variation in the amount of nitrous nitrogen. In working out the subject the want of a simple and reliable quantitative test for nitrites has been much felt and eventually Dr. Thresh succeeded in making the old potassium iodide and starch test for nitrites a reliable colorimetric quantitative one for water analysis. The preparation of the reagents and the method of working were then described and Dr. Thresh concluded by giving a practical demonstration of the great delicacy of the test. In reference to Dr. Thresh's remark as to the changes that take place sometimes in a water, Mr. F. M. Rimmington said that the character of the Bradford water had undergone a great change since the last dry summer. Mr. Siebold also thought the time would come when it would be the practice to watch a water for some time before pronouncing upon its quality, and stated that on one occasion he obtained indications of the probable presence of a ptomaine in a water.

The Conference then adjourned for luncheon. Upon resuming, Mr. Naylor, in the absence of the authors, gave a *résumé* of the next two papers.

Chloroform as a Preservative, by J. F. Burnett and H. Wyatt.—Mr. Burnett gave a list of solutions made with chloroform water which he keeps for dispensing purposes, and testified to the value of chloroform in preserving infusions. Two other instances mentioned were mixtures of powdered rhubarb and aromatic powder of chalk, which he keeps rubbed down with chloroform water (1 in 8). Mr. Wyatt, among other instances, recorded the preservative action of chloroform when added to an extract of ergot mixture containing strychnine, as well as to essence of rennet and cucumber juice. The discussion that followed the reading of the papers showed a general concensus of opinion among those present as to the value of chloroform as a preservative agent, and the opinion was expressed that under medical authority it might often be advantageously used and sometimes take the place of alcohol.

Arsenic in Glycerin.—In a short note Mr. Siebold referred to the opinion

expressed at the last meeting of the Conference that glycerin might be freed from arsenical contamination by distillation, and stated that he had now found this not to be the case. But he had found that by treating glycerin, previously diluted, with recently precipitated ferric hydrate the arsenic can be completely removed, and at the same time the glycerin is freed from all sulphur compounds. The same object can be obtained by suitable treatment with potassium permanganate, but in that case redistillation of the glycerin is necessary. Mr. Lewkowitsch also referred to the same statement as to the removal of arsenic from glycerin by distillation and said it was impracticable, as the arsenious ether of glycerin is decomposed by heating to 250° C., arseniuretted hydrogen and other volatile arsenious compounds distilling over. So far as he is aware there is no process for completely freeing glycerin from arsenic on a practical scale after it has once been introduced by the use of arsenial materials in the manufacture. He pointed out that glycerin free from arsenic is obtained in those processes where the hydrolysis of fats is effected by means of water or by lime saponification, and also when sulphuric acid is used free from arsenic, as it may be prepared from the sulphur obtained by Chance's process. Out of ten samples of glycerin coming from as many different works examined for arsenic three would have had to be rejected, four contained small traces that might be disregarded, and only three were free. Concerning soap-lye glycerin a very unnecessary caution, Mr. Lewkowitsch said, had been given, because up to the present no chemically pure glycerin had been prepared from soap-lyes in consequence of the difficulties incident to the purification of it. But a sample specially prepared by himself from this material compared well with samples from other sources. In the discussion that followed the reading of the paper the question was raised as to the source of the minute quantities of iron that are sometimes observed in glycerin, and whether they might be due to a treatment like that suggested by Mr. Siebold.

Antidotes to Strychnine.—Mr. Siebold next read a short note on some experiences in reference to strychnine antidotes. The conclusions arrived at were that tannic acid is without effect, that animal charcoal might be of some use if administered very soon after the ingestion of poison, but that physiological remedies are most likely to be of service.

Caffeine and Mercuric Chloride.—Mr. R. H. Davies then read a note on a compound of caffeine and mercuric chloride which is formed as a crystalline precipitate when a solution of corrosive sublimate is added to a solution of caffeine in water. The reaction is a very delicate one, and the compound formed has a composition corresponding to that of a chloromercurate of caffeine.

Tests for Methylated Spirit, by Messrs. Campbell and Stark.—A comparative examination of the tests for methylated spirit was undertaken with a view to deciding their relative reliability and suitability for pharmaceutical testing. Emerson Reynold's test, depending upon the presence of acetone and the formation with it of aceto-mercuric compounds, was found not to be effective when less than 2 per cent. of wood spirit was added to a distillate consisting of the first 50 cc. passing over from 200 cc. of spirit. With Cazeneuve's test, depending on the reducing action of acetone and other bodies on potassium permanganate, the limits of the test were reached with the presence of 0·5 per

cent. of proof spirit. The test proposed by Riche and Bardet, depending upon the formation of methyl violet, gave results that were delicate and satisfying, the presence of 0·5 per cent. of wood spirit being satisfactorily proved, but the time and attention required are considered to render it far from being suited for the ordinary pharmacist. Miller's test, depending upon the oxidation of methyl alcohol to formic acid, was satisfactory only in mixtures containing not less than 2 per cent. of wood spirit. On the whole Cazeneuve's test was found to be the most delicate and convenient for the pharmacist, but not quite satisfactory.

This was the last paper read on Tuesday, and most of the members then made their way to the Yorkshire College, where they were received by Professor Bodington and other officials, who had made excellent arrangements to facilitate the inspection of the establishment.

On Wednesday morning the Conference reassembled at ten o'clock.

Oroxylum Indicum Bark, by Messrs. Holmes, Naylor and Chaplin.—The bark is considered in India to be an astringent and tonic, and to be useful in diarrhœa and dysentery. It has in addition been employed by Dr. Evers in cases of acute rheumatism, and is credited by him with being, when combined with opium, a much more powerful sudorific than compound powder of ipecacuanha. The plant from which the bark is derived belongs to the Bignoniaceæ, an order of which the chemical and physiological properties are little known. The drug had been received, with others that need investigation, from Dr. Dymock, of Bombay, and had been placed in the hands of Messrs. Naylor and Chaplin for chemical investigation by Mr. Holmes, who in the first of the two papers contributed a description and some particulars as to the history of the bark. From this bark Messrs. Naylor and Chaplin reported that they have separated what appears to be a characteristic principle that they have named "oroxylin." It forms lemon-yellow crystals, melting at 228·5°–229° C., readily soluble in alcohol, ether, glacial acetic acid and hot benzol, but practically insoluble in either hot or cold water. A minute quantity brought into contact with a drop of weak solution of sodium, potassium or ammonium hydrate gives immediately a cherry-red color, that passes quickly into brick-red and olive green. In alcoholic solution it reduces silver nitrate immediately, does not reduce Fehling's solution, and gives a white precipitate with mercuric chloride, and a golden-yellow one with subacetate of lead. In addition, there have been separated an acrid principle, an astringent substance not precipitable by solution of gelatin, a compound reducing Fehling's solution, fat, wax, pectin and chlorophyll.

Green iodide of mercury was one of the substances omitted from the last edition of the British Pharmacopœia, presumably on account of its instability. As there is still a considerable demand for such a compound for medicinal use, Messrs. Martindale and Salter have applied themselves to remedying, as far as possible, the defects that led to its exclusion from the official work. This they propose to do by using in its preparation one-fourth more of mercury than the quantity required theoretically, and modifying the directions of the B. P., 1867. A drachm of rectified spirit is poured upon an ounce and a quarter of mercury in a porcelain mortar, and iodine is added gradually up to 278 grains, triturating constantly and adding more spirit occasionally to prevent over-heat-

ing and formation of red iodide. The trituration should be continued until all metallic globules have disappeared, and the mass assumes a uniform green color, when it should be dried by exposure to the air on filter paper in a dark room and preserved in an opaque bottle. The product will contain about 12·6 per cent. of free mercury, a quantity that has been found by a specialist to be no detriment, and which was exceeded in a commercial sample examined. The authors state that pills of green iodide of mercury are best massed with sugar of milk, syrup and gum, and their sap-green color may be taken as evidence of quality. The pills may be coated with sandarach solution, and should be sent out in amber-colored bottles. The paper evoked considerable discussion, and there was a decided divergence of opinion as to whether the instability of a preparation justified its exclusion from the Pharmacopœia or really made it more desirable that there should be an official standard and an authorized method of preparation.

Cream of Tartar.—Mr. H. Broadbent gave the average results of the examination of a large number of samples of cream of tartar, of French, Italian, Spanish and German origin, from which it appeared that the article comes into this country from all these sources of tolerably uniform quality, answering fairly well to the requirements of the British Pharmacopœia.

At this moment, Sir Frederick Abel, the President of the British Association, entered the theatre, together with Professor Thorpe.

The next communication partook of the nature of a blackboard demonstration by Mr. John Hodgkin, having for its object to explain from a chemical point of view the constitution of the principal *new synthetic remedies*, and to show their relationship one to another. Commencing with the fatty group, the methane derivatives were first illustrated by graphic formulæ, including methyl chloride, methylene chloride, chloroform, methylal, amylene hydrate, sulphonal, trional and tetronal. Next came the compounds of the formic acid type, such as hypnone, urethane, paraldehyd, chloral, ural, somnal, chloralamide and butyl-chloral. The aromatic series of synthetic remedies was also for convenience divided into two groups, the benzene group, including the aniline, benzoic acid and phenol derivatives, and the naphthalene group, including the naphthylamine, naphthoic acid, naphthol and quinoline derivatives. Of the first group there were illustrated acetanilide, benzanilide, exalgine, pyrodin, antithermin, antipyrin, antisepsin, phenacetin, methacetin, methylphenacetin, benzoic acid, salicylic acid, salol, dithiosalicylic acid, phenol trichlorphenol, aseptol, sozoiodol, cresalol and aristol. The second group included thermine, α- and β-naphthol, betol, quinoline, kairolin, kairin, thallin, orexin and iodol.

At the close of the paper, Sir Frederick Abel expressed the pleasure it had given him to be able to visit the Conference during its sitting, and assured the members of his sympathy in their efforts to advance the chemical side of pharmacy.

Estimation of Mineral Oil.—It is frequently found that the "recovered oils" supplied for use in the woollen and leather industries contain large quantities of mineral oil or unsaponifiable or resinous matter, which is difficult to estimate. A method for effecting this was described by Messrs. Fairley and Burrell.

Cotton Seed Oil in Lard.—Messrs. Fairley and Cooke suggested a method for detecting the presence of cotton-seed oil in lard based upon a slight difference in the specific gravity.

Mr. Fairley also read a note giving the results of an *analysis of bile.*

Mr. William Kirkby brought under the notice of the Conference a sample of *adulterated saffron.* The sophistication consisted of fibres apparently derived from a species of sedge, which were present to the extent of 41 per cent. The paper was accompanied by drawings showing the figure of the fibre and its histological structure.

Menstrua for Tinctures.—In a paper illustrated by several tables, Mr. R. Wright reported upon the solvent action of alcohol of different degrees of strength on some of the drugs used in making pharmacopœial tinctures. The menstrua experimented with in the case of the tinctures for which rectified spirit is officially ordered were of four degrees of strength, namely, rectified spirit, rectified spirit four volumes and water one volume, rectified spirit three volumes and water one and proof spirit. For the proof spirit tinctures were used proof spirit, rectified spirit, rectified spirit three volumes and water one volume, and rectified spirit and water equal volumes. The process adopted was maceration of the powdered drug for ten days, at the end of which the clear liquor was poured off, the marc strained and pressed and the united liquors filtered. Altogether, forty-eight of the official tinctures were made and the results were given in two tables, one showing the amount of extract yielded by a fluid ounce of the tincture, and the other showing the amount of alkaloid yielded by a fluid ounce of the alkaloidal tinctures. It is considered that the general results show that some at least of the menstrua for the official tinctures might be modified with advantage, and that several of them might be made with menstrua of slightly less alcoholic strength.

Mr. E. H. Farr, also, in some practical notes on certain *alkaloidal tinctures,* described some experiments undertaken with a view to discover whether the official alcoholic menstrua, or some others, are those best suited to extract the medicinal properties from the drugs operated upon. In making the tinctures, menstrua containing a known number of volumes of absolute alcohol in ten volumes of the liquid were employed, and the drugs in powder were macerated and percolated, the last portions being displaced by more menstruum until the desired volume was obtained. The tinctures were examined as to their contents in alkaloid and in extractive, their miscibility with water and with alcohol, and their appearance after having been kept a few months. The best results were obtained by using for each of the following tinctures a menstruum containing the specified number of volumes of absolute alcohol in ten volumes: aconite, 7; belladonna, 9; henbane, 7; stramonium, 7; colchicum, 5; gelsemium, 7 and 9 equal; jaborandi, 3; veratrum, 5; cinchona, 7; conium, probably 5; and digitalis, 7. For opium, proof spirit and menstrua containing 4, 3 and 2 volumes of absolute alcohol in 10 were used, but in no case was the opium thoroughly exhausted, but the tinctures made with the lower strength menstrua were on the whole richer in morphine.

Extract of malt was the subject of the next two papers. In the first, Mr. J. C. Umney commenced by commenting upon the want of uniformity in malt extracts, especially in respect to consistence and diastasic power. The latter

point was shown by the fact that the time taken by ten grams each of six samples of English make and two of German to convert an equal weight of starch at a temperature of 100° F. ranged from four minutes to upwards of two hours. Mr. Umney then described a process for liquid extract of malt yielding a product said to give an average indication of diastasic strength equal to a semi-solid extract, being capable of converting its own weight of starch in six minutes. This liquid extract was further affirmed to be elegant in appearance, exceedingly palatable, and not prone to fermentation, solidification or any of the changes to which the semi-solid extract is liable. In the second paper, Mr. D. B. Dott discussed the merits of methods followed in the estimation of the diastasic value of malt extract, and expressed preference for a modification of that suggested by Duggan. This consists in digesting 5 cc. of a 5 per cent. solution of the extract for half an hour with 400 cc. of a liquid containing 2 per cent. of arrowroot at a temperature of 55° C., adding 10 cc. of a 10 per cent. solution of soda to stop the action, and diluting the mixture to measure 500 cc. This is then tested as to its reducing power on Fehling's solution and the result corrected by deducting the equivalent of the malt extract itself. Mr. Dott considers that under these conditions a good extract of malt may be expected to produce from starch not less than three times its weight of sugar, calculated on the basis that each 10 cc. of Fehling's solution is equal to 0·0807 gram of maltose.

Buchu.—Mr. C. J. S. Thompson dealt with the comparative medicinal values of the three kinds of buchu leaves that are official in the British Pharmacopœia. The investigation was undertaken in consequence of an observation that an infusion prepared from leaves of *Barosma serratifolia* was not so active or effectual as others prepared from leaves of *B. betulina* and *B. crenulata*. This appears to have been confirmed by a comparative examination of leaves of the three species. The therapeutic properties of the leaves are said by Spiça to reside in the volatile oil and a bitter resin. The microscope showed that the oil-cells in the underpart of the leaf were closer together and much larger in the *B. crenulata* and *B. betulina* leaves than in those from *B. serratifolia*. Upon distillation *B. betulina* leaves yielded an average of 1·45 per cent. of volatile oil, which developed after a time a strong peppermint odor; *B. crenulata* leaves also yielded 1·6 per cent. of the oil, while *B. serratifolia* leaves gave barely 1 per cent. As to the resin, upon being exhausted with ether, the *B. betulina* leaves gave up 4·25 of dark olive-green resinous matter, slightly soluble in water, more so in alcohol and freely in chloroform, aromatic, but bitter to the taste, and having the characteristic odor of buchu. *B. crenulata* leaves treated in a like manner gave 3·75 per cent. of resinous matter, similar in color and taste. *B. serratifolia* leaves gave 3·45 per cent. of resin, but different from the other products in color and taste. The mucilage precipitated from a fresh infusion of *B. serratifolia* leaves was also less in quantity than that from an infusion from either of the other species, and from the general inferiority of this kind, Mr. Thompson suggests that it should no longer be employed in making the officinal preparations.

Syrup of Hypophosphite of Iron.—Mr. John Macintyre showed the instability of the syrup made according to the B.P.C. formulary, samples having been returned to the author with the complaint that they had become milky. He

states that the difficulty may be overcome by the addition of citric acid in the proportion of one-quarter of a grain to one ounce of syrup.

Mannas.—Mr. D. Hooper has brought together some published information upon eastern mannas, which he has supplemented with other results obtained by himself. The solubility of the different mannas appears to vary greatly, ranging from one in one-half to one in twelve of water. All of them are said to contain a substance reducing Fehling's solution, and out of eleven compared in a table ten are represented as dextro-rotatory. Incidentally Mr. Hooper mentions a report that the manufacture of sugar from cotton-seed cake is about to be instituted, the product being alleged to be fifteen times sweeter than that from the sugar-cane and twenty times sweeter than sugar from the beet.

Curry Leaves.—The last paper, by Dr. Mootooswamy, had for its subject an Indian drug, consisting of the leaves of the "curry leaf tree" (*Murraya Kœnigii*, Spreng.). The tree, which belongs to the Rutaceæ, is well known in Southern India, and the highly fragrant leaves are used by the natives for seasoning curries. The leaves are also employed in native medicines, being credited with aromatic, stomachic, stimulant, astringent and tonic properties. Mr. Prebble has obtained from them a small quantity of essential oil resembling that yielded by the leaves of *Ægle Marmelos*, as well as two resins and a glucosidal bitter principle that he has named "kœnigin."

Mr. Naylor then called attention to nine volumes, which had been selected by the executive of the Leeds Chemists' Association, for purchase out of the annual grant made from the Bell and Hills Fund to the library of the local association in the town that the Conference happens to be visiting.

The Committee on Unofficial Formulary was reappointed; and Cardiff, the metropolis of South Wales, was then selected as the place for holding the next annual meeting.

Mr. William Martindale was elected President of the Conference; Messrs. Carteighe, Kinninmont, Thresh and Munday, Vice-Presidents; Messrs. Naylor and Ransom, Hon. Gen. Secretaries, and Mr. A. Coleman, Hon. Local Secretary. After votes of thanks the Conference adjourned, and the members took a carriage drive to Roundhay Park; and on Thursday morning an excursion was made by rail to Embsay, from which point Barden Tower, Bolton Abbey and Ilkley Wells were visited.

AMERICAN PHARMACEUTICAL ASSOCIATION.

The thirty-eighth annual meeting of this Association convened in the Concert and Ball Room of the Hygeia Hotel, at Old Point Comfort, Va., on the afternoon of Monday, September 8, when owing to the death of President Emlen Painter, the First Vice-President, Karl Simmon, of St. Paul, took the chair. A brief address of welcome was given by Mr. T. Roberts Baker, of Richmond, Va., and responded to by Mr. Alexander, of St. Louis, Mo. Then Vice-President Eckford, of Mississippi, occupied the chair, and the President read his annual address, in which he alluded feelingly to the decease of Mr. Painter, and to his labors in behalf of pharmacy; the action of the Convention for the revision of the U. S. Pharmacopœia was commented upon, and more particularly the introduction of the metric system and the advisability of admitting into the

Pharmacopœia many of the synthetical chemicals which have, of late years, been extensively employed in medicine. The formation, by the American Medical Association, of a new Section on Materia Medica and Pharmacy, was referred to, and its importance was pointed out for the discussion, by representative physicians and pharmacists, of questions in which both professions are mutually interested. An invitation had been received to participate, by delegates, in the celebration of the sixth centenary of the University of Montpellier, and had been responded to with suitable congratulations. Referring further to the work before the different sections of the Association, the address closed with expressions of thanks to officers and members for assistance rendered to the President. The address was then referred to a committee of three for consideration, and report at a subsequent session.

After the election of seventy-eight new members, reports of committees were received and notice was given of an amendment to the By-laws, which was adopted at a later session, and enables the President, in the appointment of a Nominating Committee, to select from the Association at large, whether the members be delegates or not. When the Nominating Committee was appointed it was found that the following states and districts were represented, viz: Alabama, Arkansas, Connecticut, Columbia, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Tennessee, Texas, Virginia, West Virginia and Ontario, Can. The associations of several other states had appointed delegates, who, however, were not present. A delegation from the National Wholesale Druggists' Association was in attendance.

Remarks in eulogy of the late President Painter were made by Messrs. Bedford, Alexander, Maisch and Remington.

The minutes of the Council were read and approved by the Association, and a number of the reports, which had been examined by the Council, were read in full for the information of the members. The Treasurer reported receipts from annual dues amounting to $5,825, and from other sources $4,686.39; total receipts, $10,511.39. The disbursements were: For Proceedings, $1,9077.06; for salaries, $2,300; other expenses, $2,093.76; leaving a cash balance on hand, July 1, of $4,140.57.

The report on the National Formulary showed the cash receipts during the year to have been $1,388.18, and the disbursements for this account $465.77. The total profit to the Association from this source since the publication of the work in 1888, over all expenses connected with it, was $1,664.23, exclusive of the copies distributed gratuitously to members and others. The committee that had been appointed in 1888 to visit the American Medical Association reported upon their visit and its results, giving also the action of the Association taken at its meeting in Nashville, in May last, relative to the creation of a new Section which had been referred to in the President's address. In the discussion following, the appointment of a representative committee from this Association to the newly-created Section was generally urged, but opinions differed as to whether a Section should be formed in this Association for the special purpose of receiving medical men with the view of discussing questions of interest to both professions. Upon motion of Professor Sayre, a committee

was then directed to be appointed to consider and report upon the relations between the American Pharmaceutical Association and the American Medical Association.

The Committee of Revision of the U. S. Pharmacopœia being in session at Old Point Comfort, on motion of Prof. Whelpley, the members of that committee, who are not members of the Association, were invited to attend the sessions with the privileges of the floor.

Second session.—After the reading and approval of the minutes of the preceding session, the Nominating Committee presented the following nominations for officers for the ensuing year: President, Alfred B. Taylor, Philadelphia; Vice-Presidents, A. B. Stevens, Ann Arbor, Chas. E. Dohme, Baltimore, and J. M. Good, St. Louis; Permanent Secretary, John M. Maisch, Philadelphia; Treasurer, S. A. D. Sheppard, Boston; Reporter on the Progress of Pharmacy, C. L. Diehl, Louisville; and Members of Council, P. C. Candidus, Mobile, C. F. Goodman, Omaha, and H. M. Whelpley, St. Louis. The nominees were duly elected.

The minutes of the Council sessions were read and approved; 25 new members were elected, and amendments to the by-laws were adopted, consolidating the two sections on legislation and on education into one. Various reports were read, among them the report on prize essays, awarding the Ebert prize for the past year to Prof. Wm. T. Wenzell, of San Francisco, for his essay on the coloring principles of flowers.

An amendment to the by-laws was offered, contemplating the re-establishment of an admission fee on joining the Association; the proposition was finally laid over until next year. The same disposition was made of an amendment to the constitution creating the office of Assistant Secretary; likewise of an amendment to the by-laws offered at the last session, creating a permanent Committee on Transportation, consisting of five members, including the Local Secretary and one member each from New York, Chicago, St. Louis and New Orleans.

A telegram conveying congratulations from the Kings County, N. Y., Pharmaceutical Association was received and directed to be acknowledged by letter.

The report of the committee on the President's address was discussed and adopted, ordering the appointment of a committee charged with drawing up suitable resolutions in reference to the death of the late President Painter; recommending to the Section on Education and Legislation the consideration of the subject of apprenticeship; approving of a conference of the Committee on Legislation with the State Secretaries for formulating a plan for the interchange of certificates of the State Boards of Pharmacy; and disapproving of the suggested election of the Presidents of State Associations as Vice-Presidents of this Association.

Propositions were made for holding the next meeting at Nashville, Tenn., and at Hot Springs, Ark., but they were ruled out of order at the time, and a committee was subsequently appointed, which reported in favor of holding the next meeting in New Orleans on the second Monday in May, 1891; a minority report favored St. Louis. The amendment to select the latter city was lost by a vote of 26 ayes against 64 nays, and the time for holding the meeting was finally referred to the Council to be changed, if necessary, so as not to clash with the meeting of the American Medical Association.

Communications were received from the Virginia Pharmaceutical Association inviting the members to attend the sessions of that body; also to be present at the lecture by Professor Remington on the metric system, to be delivered on Wednesday morning.

The Section on Commercial Interests held two sessions on Tuesday, Mr. Eliel occupying the chair. In his annual address the Chairman referred to the uselessness of efforts being made for abolishing the special liquor tax; the rapid increase of proprietary pharmaceuticals was characterized as a detriment to legitimate pharmacy, and it was suggested to ask the co-operation of the American Medical Association with the view of checking the evil; attention was called to the cutting in prices on proprietary medicines, and it was suggested that steps be taken for mutual insurance against fire.

Secretary Kilmer's report dealt likewise with price cutting; also with shorter business hours, trade unions by pharmacists, advertising of specialties, and with other matters of trade interests. A lengthy discussion took place on the various plans, which had been suggested from time to time to prevent the cutting of prices, co-operation of the retailers being recommended, also the joint manufacture of family medicines to take the place of such, the profit on which had been reduced through the so-called cutters.

The various questions having been referred to a committee, the report was considered at the evening session, when the conclusion was reached that in regard to the prescribing of proprietary preparations by physicians the best results would be accomplished through individual work; a conference was suggested between committees of the Pharmaceutical, the Wholesale Druggists' and the Proprietors' Associations; and a committee of five was appointed to mature a feasible plan for mutual insurance.

Mr. Henry Canning, of Boston, was elected Chairman of the Section, and Mr. W. L. Dewoody, of Pine Bluff, Ark., Secretary, and after installing the newly elected officers, and passing a vote of thanks to the retiring officers, the Section adjourned.

The Section on Scientific Papers held four sessions, including an adjourned one, for the reading and discussion of papers. Professor Whelpley occupied the chair and Professor Stevens acted as Secretary. The following papers were read:

The Constitutional Obligation of Congress Regarding Weights and Measures was discussed by Professor Oldberg in a lengthy paper giving the history of what has been said and projected on this subject during the past century, in the United States, and leading to the conclusion that "we have now no legalized standards and denominations at all, unless Sections 3569 and 3570, R. S., are to be construed as making the metric weights and measures our only legalized system." The following resolutions accompanying the paper were concurred in, and by the Association referred to a committee, with power to act.

WHEREAS, The Constitution of the United States imposes upon Congress the duty of establishing fixed standards of weights and measures for the use of the people; and

WHEREAS, The customary weights and measures in use in the United States are arbitrary, unsystematic, inconvenient and indefinite, being governed partly by English law, partly by tradition, and partly by chance; and

WHEREAS, No laws of the United States exist establishing a National System of Weights and Measures, or fixing the values of the customary units; therefore, be it

Resolved, By the American Pharmaceutical Association, that Congress be and is hereby respectfully requested to consider, without unnecessary delay, the importance of legislation upon this subject; and, further

Resolved, That it is the sense of this Association that it would be worthy of the dignity of the American nation to celebrate the four-hundredth anniversary of the discovery of America by the adoption of the decimal system of weights and measures in all governmental transactions and for purposes of foreign and interstate commerce, to take effect on the date of the landing of Christopher Columbus on this continent; and

Resolved, That copies of these preambles and resolutions be forwarded by the Secretary of this Association to the Speaker of the House of Representatives of the United States, to the Chairman of the Committee on Coinage, Weights and Measures of the House of Representatives, and to the Superintendent of the Bureau of Weights and Measures.

Percolation was the theme discussed by J. W. Eckford, of Mississippi, a review being given of various methods of percolation and of apparatus constructed for the purpose of insuring complete exhaustion as nearly as may be possible. While several of the pressure percolators that have been devised are quite favorably commented upon, the author's "experience is that the simpler the apparatus, the more available it is; and I think this is the opinion of the average retail pharmacist who manufactures for his own retail trade."

Syrup of Tolu is suggested by M. B. Travis, of Illinois, to be prepared by dissolving 1½ oz. of Tolu balsam in 4 fl. oz. of alcohol, using this menstruum in two portions, straining the solution, pouring it upon 28 oz. of loaf sugar contained in a percolator, and displacing with sufficient water to obtain 32 fluid ounces of syrup, which is stated to be clear, permanent, well flavored and to retain the acids of the balsam in complete solution.

Solution of Magnesium Citrate, according to Luther F. Stevens, of Brooklyn, should be made to contain the bibasic salt which, owing to its ready solubility in water, is difficult to crystallize, but is stated to be, therapeutically, the most active of the magnesium salts, and to have a pleasantly acid taste even when no free acid is with it. Its solution is more readily prepared than that of the tribasic salt; and with less material to the same dose, and with the danger of crystallization removed, is the cheaper of the two. For the preparation of four bottles of the solution the following ingredients are employed: Magnesium carbonate, 484 grains; citric acid, 1,134 grains; syrup, 5 fluid ounces; oil of lemon, 1 minim; potassium bicarbonate, 120 grains, and a sufficient quantity of boiled water. The potassium salt may be replaced by the use, for each bottle, of 25 grains of pure sodium bicarbonate.

Belladonna Plaster, by S. W. Williams, of Orange, N. J.—The paper gives a brief review of the belladonna plasters as directed by different authorities, and from the recorded assays of belladonna root considers ½ per cent. of alkaloid to be the proper strength of the pharmacopœial plaster. Regarding the material to be employed in the preparation of this plaster, the author favors the use of an extract prepared from the rhizome of *Scopola carniolica*

(see this JOURNAL, Feb. 1890, p. 99), which he found to be of pretty uniform alkaloidal strength; the records of working with over 16 tons of the commercial rhizome show an average strength of 0·59 per cent. of alkaloid, estimated with Mayer's solution. The amount of extract obtainable from the drug increases with the decrease of the alcoholic strength of the menstruum, the alkaloidal percentage of the extract diminishing in an inverse proportion; thus with 94 per cent. alcohol, 13·15 per cent. extract, containing 4·10 per cent. alkaloid, were obtained, while 25 per cent. alcohol yielded 38·46 per cent. extract with 1·40 per cent. alkaloid. Using 80 per cent. alcohol, the yield of extract varied between 22 and 28, average 25·3 per cent., with a variation of alkaloid from 2·0 to 2·60, average 2·358 per cent. The paper describes also the manufacture of the plaster on the large scale, and is illustrated with photographic reproductions of the rhizome and of the machinery for the manufacturing of the plaster. A working process for determining the amount of alkaloid in the plaster by means of Mayer's solution is likewise described.

Fluid Extract of Ipecac.—T. J. Milner experimented with the different processes recommended for the preparation of this extract, using a root unusually rich in alkaloid, assaying 3·12 per cent. The fluid extract prepared by the pharmacopœial process contained only 46 per cent. of the alkaloids; by Rother's process (*Drug. Circ.*, 1884, p. 4) 45 per cent.; by Robbins' formula (AMER. JOUR. PHAR., 1883, p. 128) 75 per cent. the extract forming a precipitate; by using as the menstruum alcohol and water in the proportion of 4 : 1, 85 per cent.; and with the same menstruum, but following Rother's process, with magnesia, 80 per cent. of the alkaloid was contained in the fluid extract.

Emetine valuation of Fluid Extract of Ipecac is effected, by W. Simonson of Cincinnati, by a process depending upon the removal of resinous matter from the acidulated extract by means of ether, liberating the alkaloid with ammonia, extracting it with ether, evaporating to constant weight, and weighing. The sulphate dried over sulphuric acid, was analyzed, yielding 81·35 alkaloid, 15·73 sulphuric acid, and 3·08 water. From these and other determinations the author calculates 508 to be the molecular weight of emetine, which agrees with Kunz's formula $C_{30}H_{40}N_2O_5$, determined in 1887. Estimating upon this basis the purity of the alkaloid in the ether residue as obtained above, it was found to assay in six determinations between 98·4 and 99·7 per cent.

Cascara sagrada and its allies was the subject of a discourse by Professor H. H. Rusby. It was made particularly interesting through the exhibition of botanical specimens, and of specimens of bark from branches and old wood. *Rhamnus californica* grows sparingly in Northern California, but becomes more abundant southward and eastward through Mexico and Arizona, passing into several varieties which have been regarded as distinct species. On the other hand, *Rhamnus Purshiana* becomes abundant from Northern California northward, so that the place of collection furnishes presumptive evidence of the origin of the bark. The bark of the two species collected from older wood cannot well be distinguished in appearance, while the younger bark presents a few marks of distinction in the transversely elongated light-colored spots which, in *R. Purshiana*, are much more numerous, and persist for a much longer period than in the other species. The two barks are best distinguished from the arrangement and characters of their bast-bundles, resin-areas and medul-

lary rays, and Professor Rusby is preparing illustrations of these structural characteristics to accompany the descriptions in his paper.

An indigenous substitute for Cork was described in a paper by A. O. Ingalls, of Murray, Idaho. It is the suberous layer of the bark of the Douglas spruce, *Pseudotsuga Douglasii*, a large tree, growing from Colorado to Mexico and northward, and attaining its greatest proportions in Oregon. The corky layer is of good quality, but is apt to become fissured, which tendency seems to be lessened by protecting the bark against climatic influences. The layers are formed earlier and on younger trees than is the case with the cork oak, and since the quality appears to be promising, this probable source of cork for industrial use deserves closer attention than it has thus far received. Unfortunately, the specimens sent by Mr. Ingalls did not reach the meeting.

The inorganic ingredients of commercial Asafetida have been investigated by W. A. Puckner, of Chicago. Besides the insoluble sand, etc., the ash contained alumina, iron, and sulphate and carbonate of calcium and magnesium; its amount from different specimens varied from 19 to 56 per cent. Curiously enough, a specimen of powder, labelled *purified*, yielded over 55 per cent. of ash. We have always found the tears to be free from this inorganic admixture, which is present in that portion of commercial asafetida agglutinating the tears.

Iodoform.—On this subject two papers were presented, one by E. R. Boyce, recommending its preparation by the process of Sulliot and Raynaud (see AMER. JOUR. PHAR., 1889, p. 175); it yields 98 per cent. of the iodine.

The second paper, by C. H. Wise, recommends the following test of identity: On heating an alkaline solution of resorcin with a little iodoform, a red color is produced. For recognizing the possible adulteration with picric acid, the reaction with potassium cyanide is recommended, whereby a deep red color is produced; the acid should be dissolved in alkali. (See AMER. JOUR. PHAR., 1884, p. 212.)

Terebene, as met with in commerce, was examined by F. A. Thompson, of Detroit. Four specimens were of American and one of German make; all affected polarized light with a varying right rotation, and had boiling points differing from that of pure terebene. The results agree with those reported by Messrs. Jayne and Chase, in AMER. JOUR. PHAR., 1887, p. 65.

Albuminate of Iron and its preparations, by Dr. A. Tsheppe, of New York, is the title of an essay in which also the ferric compounds of sugar, dextrin and allied substances are considered. These compounds are generally formed by mixing a solution of the body with that of a ferric salt, when on neutralizing the mixture, a precipitate of the new compound will be produced; the further addition of alkali causes the solution of the precipitate, the alkali entering into combination. The normal ferric salts may be replaced by basic salts for forming analogous compounds, richer in iron, with crystalloids like sugar or glycerin. But colloids like albumin or dextrin or gum arabic prevent the formation of basic iron compounds. Since alkaline solutions may contain a large excess of albumin, and acid solutions a large excess of iron, the precipitates obtained from such solutions may vary largely in their composition, in the former case through the simultaneous precipitation of a derivative of albumin. Solution of ferric chloride, U. S. P., was found to combine

with one part by weight of each of the following substances, viz: 0·92 with glycerin, 0·42 with cane sugar, 1·72 with mannit, and 1·05 with egg albumin. Of the latter, one part requires 7½ to 8½ parts by volume of dialyzed iron containing 5 per cent. Fe_2O_3. In all these cases the combination is effected only while the ferric hydrate is in the nascent state, since freshly precipitated ferric hydrate does not dissolve in a solution of sugar or similar substance. The author then dwells upon the principal characters of egg-albumin and of its derivatives produced by the influence of acids, alkalies, coagulation and digestion, all of which—peptone excepted—are precipitated from their solutions by sodium chloride or sulphate, or by magnesium sulphate, while peptone is precipitated by ammonium sulphate. Peptone does not, like albumin, form a chemical compound with iron, and the so-called peptonates of iron, met with in commerce, usually contain, in the place of peptone, coagulated albumin dissolved in alkali; but even if containing peptone (or digested albumin) the preparation would be simply a "solution of peptone and iron." The treatment of a ferric precipitate and albumin or similar substance with an insufficient amount of alkali may result, instead of in complete solution, in the decomposition of the compound, the solution of the albumin and the removal of the ferric hydrate. Solutions of basic ferric albuminate may be more simply made by mixing specific quantities of albumin and dialyzed iron in admissibly diluted solutions, with the precaution that the albumin be first deprived of its alkalinity.

In answer to a question Dr. Tsheppe stated that on taking ferric albuminate internally, it would be decomposed by the free acid of the gastric juice; such preparations are, probably, not superior to most other liquid preparations of iron.

Pepsin.—This subject was treated by Dr. Eccles, of Brooklyn, in two lengthy papers, one of them being entitled "What is Pepsin?" The author states that a solution of pepsin heated to boiling becomes milky, the precipitate settling in a short time in the presence of a little free HCl; this precipitate is stated to be always in exact proportion to the digestive power of the pepsin, and is called by the author peptose. The amount of such peptose is proposed by him for the gravimetric determination of pepsin. In regard to commercial pepsin the author states that "if we define dirt as matter out of place, it might be characterized as a lot of dirt with a trace of pepsin."

In the second paper Dr. Eccles discusses the testing of pepsin for pharmacopœial purposes; while he believes the gravimetric method by boiling to be the most exact one, he thinks that it should be more thoroughly tested. For determining the digestive power of pepsin, he recommends that albumin of eggs be diluted with three times its bulk of water, the mixture strained through muslin or cotton, 40 cc. of the strained mixture to be boiled for ten minutes, and the liquid then diluted to 50 cc. by the addition of water and the requisite amount of HCl. The mixture has the appearance of an emulsion from the finely divided coagulated albumin; it is digested at 109° F. with the desirable quantity of the pepsin to be tested, the complete solution of the albumin being indicated by the change of the mixture in appearance from opacity, through translucence and slight opalescence, to transparency.

An animated discussion followed the reading of these papers, and some of the experiments as well as conclusions arrived at were strongly criticised.

Pharmacists as food inspectors was the title of a paper read by L. M. Connor, of Dallas, Tex., in which pharmacists were recommended to apply themselves to the chemical and microscopical examination of articles of food and drink. This led to a discussion on defining adulterations, on adulteration laws, and on the results attained through the enforcement of such laws, for which latter purpose the salutary effect of the Massachusetts law was specially cited.

The utilization of the Soda products of Kentucky was discussed in a paper by J. P. Barnum, of Louisville. The process described is a modification of that of Solvay.

The Florida Phosphate fields were discovered in 1889, near Dunellen, Marion County, and extend through several adjacent counties of Central Florida, coprolites being found in Peace River and other streams. The paper by Dr. H. Robinson, of Jacksonville, gives the history of the discovery, and of the development of the new industry; it also furnishes the results of an analysis of 1, laminated Dunellen phosphate, and 2, of Peace River caprolite, viz:

	1.	2.
Lime,	53·31 per cent.	58·40 per cent.
Phosphoric acid,	33·40 "	27·70 "
Sand and insoluble matter,	6·32 "	9·60 "
Ferric oxide,	3·05 "	1·85 "
Alumina,	2·40 "	1·40 "
Carbonic acid and loss,	0·72 "	1·05 "

The paper on *ethereal oil of Polygala species*, by Henry C. C. Maisch, is printed in full in the present number.

The Section elected Prof. E. L. Patch, of Boston, Chairman, and Prof. C. S. Hallberg, of Chicago, Secretary, for the ensuing year.

The Sections on Pharmaceutical Legislation and on Education having been consolidated, they met on the evening of Thursday, Professor Bedford presiding, and Professor Stevens, Secretary. The Chairman read an address presenting various subjects of interest to the Section, after which papers on Methods of Instruction were read by Professors Rusby, of New York and Simon, of Baltimore. Considerable discussion was had on this topic in which, among other matters, the value of good school education was prominently brought forward; also the variable educational status of apprentices in pharmacy, the value of practical experience in the store before attending lectures, apprenticeship in stores where but few preparations are manufactured or where merely scanty facilities for practical work are obtainable, etc. A paper by Professor Whelpley, giving a "Synopsis of a Course in Microscopy for Pharmacists," was then read and commented upon.

On the subject of Legislation Mr. H. M. Whitney, of Massachusetts, read a paper, giving from his experience a method for the examination of candidates by Board of Pharmacy, the object being the determination of the candidate's general knowledge of the various drugs, of compounding and dispensing, of chemical and mechanical incompatibles, of solubility, explosives, corrosives, specific gravity, ability to interpret hieroglyphics and abbreviations, etc. In process of time, there may probably be elaborated a fairly uniform method of examination, and then an interchange of certificates brought about; but, the author thinks, active and aggressive efforts to do it now would hazard, if not absolutely remove, from some sections, all there is to-day.

The Section elected as Chairman for the ensuing year Professor W. Simon, of Baltimore, and as Secretary, Mr. F. C. Hogan, of Illinois.

The final Session of the Association took place on Friday morning. After the reading of the minutes of the previous sessions and of the Council meetings, Mr. A. K. Finlay was elected Local Secretary, and a motion was adopted, making him Chairman of the Committee on Arrangements, with power to select his associates. Upon the recommendation of the Council a Committee on Transportation was appointed, consisting of Messrs. Alexander, of St. Louis; Main, of New York; Gordon, of Cincinnati; Jamieson, of Chicago, and the Local Secretary.

A committee was directed to be appointed, upon motion by Prof. Remington, to carefully consider the resolutions offered by Prof. Oldberg, and to report what action this Association should take in endeavoring to secure the adoption of the metric standards by the Government. The committee consists of Messrs. Remington, Oldberg, Rice, Hallberg and Manning.

On motion of Mr. Hallberg resolutions were passed, that it would be desirable that the International Pharmaceutical Congress meet in Chicago in 1893; that a hearty invitation be extended to the pharmacists of all countries to be present at the meeting of this Association in 1893, and that a committee be appointed to report upon the matter at a future meeting.

Mr. Connor read a telegram from the Mayor and the President of the Board of Trade, of Dallas, Tex., inviting the Association to hold its next meeting in that city. The communication was received with thanks.

The officers-elect were then installed and on taking their stations expressed their thanks. Mr. Taylor, the President-elect, referred to his presence at the organization of the Association in 1852; and Mr. Maisch to his attendance at the meeting in 1857, and that soon thereafter work had been assigned to him, since 1865 the Secretaryship, and notwithstanding his resignation had been again presented last year, it had been rejected. It will doubtless be of interest in connection with the early history of the Association to refer to its forerunner, the Convention of Delegates from Colleges of Pharmacy, which was held in New York in October 1851. Of the accredited delegates then present, we believe, that only Samuel M. Colcord, of Massachusetts; George D. Coggeshall, of New York, and Mr. Taylor are still living. The latter acted as Secretary of the Convention, which issued a call for a convention of pharmacists for the organization of a National Association to meet every year. This Convention met in Philadelphia, October 6, 1852. Of the delegates then present Messrs. Joseph Burnett, of Boston; S. M. Colcord and G. D. Coggeshall are still living, the last two having been Vice-President and Secretary, respectively, at that meeting; and of the other members Eugene Dupuy, of Brooklyn, Charles A. Heinitsh, of Lancaster, Pa., and the present President of the Association.

After the installation of the officers a telegram was read from Dr. Frank Woodbury, Chairman of the Committee on Materia Medica and Pharmacy, American Medical Association, inviting, in conformity with the action of the latter body, the sending of delegates to attend the next meeting at Washington. In response to this invitation the appointment of twenty-five members to serve as delegates was ordered. In order not to conflict with the meeting of

the American Medical Association the Council was empowered to change the date of meeting in New Orleans, if necessary.

After passing the customary resolutions of thanks, the Association adjourned.

Ample accommodations had been provided by the Arrangement Committee at the spacious Hygeia Hotel, where, during the latter part of the first week in September, the members began to make their appearance. Early on Sunday morning the steamer *Carolina*, from Baltimore, landed a party at the hotel, and during the afternoon a party from farther east arrived, having sailed from New York by sea to Norfolk. Most of the western members reached the place of meeting on Sunday evening, having come from Cincinnati by rail over the picturesque Chesapeake and Ohio Railroad, while many of the members from New England, who had taken the steamer at Boston for a sea voyage, were detained by fog, and did not arrive until early on Tuesday morning. Many of the southern members who came by rail, had likewise been detained on the road, causing an unlooked-for postponement in their arrival. All were comfortably installed in the hotel, whence attractive views are had over Fortress Monroe, the Chesapeake Bay and Hampton Roads, many of the points being of historical interest. Considering the locality and its surroundings it was strange that, during their stay, quite a number of the visitors were for a time troubled with gastric disturbances; however, the majority escaped such an inconvenience.

The neighboring fort was frequently visited to see the grounds and works, or to witness the drills or parades of the garrison. Carriage drives were taken through the surrounding country, and frequent visits were made to the village of Hampton, its churches and schools, the Soldiers' Home and the National Cemetery. The briny waters of the bay invited to sailing and fishing excursions, and conjointly with the warm atmosphere rendered bathing and swimming a pleasurable exercise. Monday evening was devoted to a reception in the ball-room, combined with music from the military band, and followed by dancing. At the entertainment on Wednesday evening the principal attraction was a picked choir from the Hampton Institute with their quaint songs. Thursday morning saw the members prepared for an excursion by steamer to Norfolk, and thence by rail to Virginia Beach, the famous seashore resort on the Atlantic Ocean. This was a departure from the usual custom of not having any diversion from business, except for the ladies, during the day-time, until after the final adjournment. Similar arrangements may probably be made on other occasions, devoting an hour or so to the visit to some point of interest near the place of meeting; if such an opportunity be not given to the visiting members they are apt to make such visits at a time set apart for the sessions.

After the final adjournment on Friday most of the members left Old Point Comfort, shortly after noon, by special train for Richmond, where they found carriages in waiting for a drive of several hours through the most interesting parts of that interesting city. The drive over, a number of the visitors had to commence their homeward journey; but the largest number remained over night at the Exchange Hotel, and on Saturday morning boarded the train which was to convey them to the famous Natural Bridge, which, owing to obstruction from a wrecked train, was reached later than had been expected. The chasm and the cataracts were seen at night illuminated by colored flames,

causing a magnificent spectacle, and were visited again on the following morning. Again a number of the party had to separate, but full one hundred took a special train for Luray, arriving there Sunday evening. The celebrated caverns were visited by many during the night, to enable them to take a morning train towards home; while others tarried at charming Luray Inn for a day or two, before completing their homeward trip, or visiting White Sulphur Springs, Washington, or other places of interest.

PHARMACEUTICAL COLLEGES AND ASSOCIATIONS.

Philadelphia College of Pharmacy.—Among the improvements which have been introduced for the approaching session, is to be mentioned the lighting of the lecture-rooms and of other parts of the buildings by electricity, and measures for perfecting the ventilation, more particularly of the laboratories. The material for instruction has also been considerably amplified in the different departments.

The Colleges of Pharmacy in Chicago.—During the past summer negotiations were opened between the Chicago and Illinois Colleges of Pharmacy with the view of consolidating the two institutions. We regret to state that these efforts have failed. The faculty of the Chicago College having resigned, with the exception of Professor N. G. Bartlett, the vacancies were filled by calling Professor C. S. Hallberg, Ph.G., to the Chair of Pharmacy, Professor Albert G. Manns, Ph.G., Ph.D., to the Chair of Chemistry, and Professor Henry C. C. Maisch, Ph.G., Ph.D., to the Chair of Materia Medica and Botany. On the other hand, the Illinois College has attached to its faculty Professor E. B. Stuart in the Chair of Materia Medica and Pharmacognosy, and Professor E. S. Bastin in the Chair of Structural and Systematic Botany.

We sincerely hope that a union of the two colleges may yet be effected at no distant day.

The Colorado Pharmacal Association, which was organized at Denver, on Tuesday, September 16, is the first state association discarding the term "Pharmaceutical," and adopting in place thereof the designation "Pharmacal." This adjective was suggested by the late Professor Edward Parrish, in a paper read before the American Pharmaceutical Association, in 1866 (see *Proceedings Amer. Phar. Assoc.*, 1866, p. 263). The word, though admitted to be good in construction, was rather objected to for want of euphony (*Ibid.* p. 78), and since that time has been used only to a very limited extent, like the term "pharmacial," which was suggested at the same meeting. On the other hand, the title "pharmacist," though not entirely unknown at that time, was advocated by Prof. Parrish, and in a comparatively short time took the place of "pharmaceutist," which had been previously used in preference. The title was adopted by a small majority upon the statement that "Pharmacal" was considered to be more modern and better English than "Pharmaceutical."

The Convention met at Odd Fellows Hall, and organized by electing John Best, of Central City, Temporary Chairman, and Felix A. Lyneman, of Denver, Temporary Secretary. A Constitution and By-Laws were considered and adopted, and permanent officers were elected, as follows: Chas. M. Ford, Denver, President; S. T. Kostich, Leadville, and Chas. Newman, Durango, Vice-Presidents; F. A. Lyneman, Secretary, and J. W. Turrell, Treasurer.

Measures were taken for the incorporation of the new association. The Chair was empowered to select delegates to attend the Interstate Pharmaceutical Convention, at Excelsior Springs, Mo., next year, and delegates to the American Pharmaceutical Association were elected. Quite a number of papers were read at this, the first meeting. Namely: *On Defects of the Pharmacopœia*, by C. M. Ford; *On Poison Law*, by C. S. Prowitt; *On Blackberry Cordial*, by C. D. Lippincott; *On Mountain Sage*, by N. Anderson; *On Colorado Cough Root*, by J. Kochan; *On Training of Apprentices*, by Mr. Dahl; and *On the Manufacture of Fluid Extracts by Pharmacists*, by C. D. Lippincott.

The next meeting will be held at Colorado Springs, September 8, 1891; the Local Secretary is G. B. Storer.

The North Dakota Pharmaceutical Association convened in fifth annual convention at Grand Forks, August 5, President Christianson in the Chair. The usual routine business was transacted. Papers were read "On the Practice of Pharmacy," by Dr. De Vaux, and "On Ferrous Chloride and its Preparations," by Frank Frisby, of Bismarck, the latter being awarded the Association's prize of $25. Mr. Frisby also received the prize offered for the best pharmaceutical preparations made by a member of the Association. Considerable discussion was had on the prohibition law of the state and its vexatious effects upon the legitimate drug business. A committee was appointed to draft a pharmacy law, and another committee to make arrangements for a joint meeting with the State Medical Society. Resolutions of thanks were passed to H. L. Haussamen, formerly Secretary of the Association, and now a resident of Costa Rica. The executive officers for the current year are: D. N. Siegfried, of Sanborn, President; L. C. Christianson, of Fargo, Secretary, and E. C. Maxcy, of Fargo, Treasurer.

The South Dakota Pharmaceutical Association met at Watertown, August 19, transacting the customary routine business, and listening to the reading of papers *On Instruction of Apprentices*, by R. T. Hill; *On Patent Medicines*, by D. S. White; *On Explosive Medicines*, by G. W. Lowry; *On Pepsin* of different manufacture, by J. A. Bower; *On Excessive Doses* in prescriptions, by J. H. Marshall; *On the Purity of Ice Water*, by R. M. Cotton; and *On the Study of Botany*, by Z. A. Crain.

A re-organization of the Association was effected in conformity with the new Pharmacy Law; W. A. Burnham, Croton, was elected President; I. A. Keith, Lake Preston, Secretary, and G. W. Lowry, Sioux Falls, Treasurer. Madison was selected as the place for holding the next meeting, August 20, 1891, with M. A. Bartlett as Local Secretary.

The Virginia Pharmaceutical Association met at its Ninth Annual Meeting in one of the parlors of the Hygeia Hotel, at Old Point Comfort, September 9 and 10; President Stratton in the Chair. The usual routine business was transacted, and papers were read *On Success in the Drug Business*, by W. A Strother; *On the National Formulary*, by E. A. Craighill; *On Digitalis*, by C. B. Fleet; *On Adulteration of Powdered Drugs*, and *On Soda Bicarbonate*, by Prof. Dunnington. The lecture by Prof. Remington *On the Metric System* was attended by this Association and by the American Pharmaceutical Association. E. R. Beckwith, Petersburg, was elected President; C. B. Fleet, Lynchburg, Secretary, and C. S. Lumsden, Lynchburg, Treasurer. The next meeting will be held at Roanoke, September 8, 1891.

The following printed Proceedings of State Pharmaceutical Associations have been received:

Delaware.—Fourth annual meeting. P. 68. See June number, p. 311. Among the papers read at the meeting and not previously noticed, the following may be mentioned: The Professional Standing of the Apothecary, by Dr. F. E. Stewart; Household Ammonia, by F. R. Smith; also, by the same author, papers on Face Powders, and on The Reaction between Iodoform and Potassium Chlorate.

Georgia.—Fifteenth annual meeting. P. 76. See June number, p. 311. The Association elected the following professors honorary members: John Attfield, of London; Wm. Simon and D. M. R. Culbreth, of Baltimore; C. F. Chandler and P. W. Bedford, of New York, and J. P. Remington and J. M. Maisch, of Philadelphia.

Louisiana.—Eighth annual meeting. P. 116, including Report of State Pharmacy Board. See June number, p. 311.

New York.—Twelfth annual meeting. P. 228. See August number, p. 428. A reprint of the valuable *Report on New Remedies* accompanies the volume. This Report has been compiled by Dr. Eccles, of Brooklyn, and Professor Vial, of Ithaca, and gives a brief characteristic of the remedies introduced within the past few years, including uses, doses, etc. Copies of this reprint may be procured from the Secretary, Clay W. Holmes, Elmira, N. Y., at 10 cents each, a reduction being made for ten or more copies.

North Carolina.—Eleventh annual meeting. P. 72, including Report of the Board of Pharmacy. The meeting was held in Morehead City, July 8 to 10. President Croom's address and the reports of the Treasurer, Secretary and of the several committees received due attention. Professor Venable having suggested the establishment of a School of Pharmacy in connection with the University of North Carolina, a Committee on Education, Wm. Simpson, of Raleigh, Chairman, was appointed to further the plan. Papers were read on Permanent Emulsions, by W. H. Wearn; on Colorimetric Estimation of Morphine (by ferric ferricyanide), by S. J. Hinsdale; on Eupatorium, by D. Herring; Practical Notes, by E. V. Zoeller. The last-named gentleman was elected President, F. W. Hancock, of New Berne, Secretary; A. S. Lee, of Raleigh, Treasurer, and R. J. Gooding, of New Berne, Local Secretary. The next meeting will be held at Morehead City, not later than the middle of July, 1891.

Rhode Island.—Seventeenth annual and semi-annual meetings. P. 19. The meetings were held January 8 and July 9, 1890.

EDITORIALS.

Remedy for Rhus poisoning.—The following communication, which explains itself, will be particularly appreciated by those of our readers, who are subject to poisoning from the exhalations of Rhus:

EAST LEVERINGTON AVENUE,
PHILADELPHIA, PA., August 26, 1890.

Editor PHILADELPHIA JOURNAL OF PHARMACY:—Having experienced great relief from the application of "Phénol Sodique" externally, undiluted, in a very annoying case of poisoning of the arms and hands by "poison ivy," while endeavoring to extirpate the vines, I take the liberty of submitting the facts, and with sentiments of profound respect, I remain, etc.,

B. F. BUTCHER.

A Libel Suit has been entered by William Radam, manufacturer of Radam's Microbe Killer, against the *Druggists' Circular*, of New York, for $200,000 damages, the largest amount so far as heard from that was ever asked for in a suit of this kind. The pleadings show that the action is brought to recover damages claimed to have been done the business of the plaintiff by an article published in the *Druggists' Circular* for September, 1889. This article gave the result of an analysis made by Dr. R. G. Eccles, who stated that a preparation identical with the Microbe Killer could be made at a cost of less than five cents per gallon for which Radam charged three dollars, by mixing oil of vitriol (impure) 4 drams, muriatic acid (impure) 1 dram, red wine, about 1 ounce, and well or spring water 1 gallon.

The *Druggists' Circular* expresses a desire to hear of any case in which unfavorable results have followed the administration of the Microbe Killer, or of any other fact that would be interesting under the circumstances. Should any of our readers be in possession of such facts, they are requested to communicate the same to that publication.

The American Public Health Association will hold its eighteenth annual meeting in the city of Charleston, S. C., December 16 to 19, next. Besides the papers which will be read, the following subjects will be presented for discussion: Heating, lighting, drainage and ventilation of houses; sewage disposal; maritime sanitation at ports of arrival; prevention and restriction of tuberculosis; isolation hospitals; climatic establishments for tuberculous persons.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Arzneibuch für das Deutsche Reich. Dritte Ausgabe. Pharmacopœa Germanica, Editio III. Berlin, 1890. R. V. Decker's Verlag. 8vo. Pp. 432. Price, bound, Mark 2.30.

Perhaps the most striking difference of the present edition of the German Pharmacopœia from its predecessors is that it has been printed in the German language, instead of in the Latin tongue. But the names of the drugs and preparations are given in Latin with their German equivalents. It is impossible to give, within the limited space of this notice, a critical review of the contents of the book, and for the present we have to content ourselves with the enumeration of the most important changes regarding admission and rejection of officinals.

The following, which were contained in the second edition, have been dropped: Acet. digitalis, acid. carbol. crud., acid. hydrochlor. crud., antidotum arsenici, aq. aurantii, aq. menthæ crispæ, calc. phosphor. crud., castoreum, chininum bisulfuricum, chinoidinum, codeinum, cupr. oxyd., decoct. sarsap. compos. mitius, extr. aconiti, extr. cannab. ind., extr. digitalis, extr. graminis, extr. helenii, extr. quassiæ, extr. sabinæ, extr. scillæ, ferrum jodatum, fol. menth. crisp., gelat. carrag., gelat. lich. island., gland. lupuli, herb. cannab. ind., hydrarg. jodat., lactucarium, laminaria, linim. terebin., liquor corrosivus, liq. ferri sulf. oxydat., mangan. sulfur., morphin. sulfur., natrium benzoic., ol. aurant. flor., ol. cajeputi, ol. cocos, ol. rapæ, plumb. jodat., rad. helenii, rad. liquir. (Spanish), rhiz. graminis, rhiz. imperat., rhiz. torment., summit. sabinæ, syr. aurant. flor., tinct. aloes, tinc. asæ foet., tinc. cannab. ind., tinc. castor.,

tinc. chinoid., tinc. croci, tinc. ipecac., unguent. sabinæ, vin. chinæ, zinc. sulfocarbol.

The following have been recognized for the first time by the Pharmacopœia: acetanilidum, acid. trichloracet., æther bromatus, agaricinum, album. ovi sicc., amylenum hydratum, antipyrinum, bals. tolut., capsulæ, chinin. tannic., chloralum formamidatum, cocainum hydrochloric., extracta fluida (condurango, frangula, hydrastis and ergot), ferr. citric. oxyd., homatrop. hydrobrom., hyoscinum hydrobrom., keratin., liq. ferri album., liq. ferr. jodati, mentholum, naphthalin, naphtholum, paraldehydum, phenacetinum, physostigminum sulfuric., resorcinum, rhiz. hydrastis, salolum, sebum salicylat. (2 per cent. salicylic acid), sem. arecæ, sem. strophanthi, species diureticæ (lovage, ononis, liquorice root, juniper berries, equal parts), styli caustici, sulfonalum, suppositoria, terpinum hydratum, thallinum sulfuricum, tinc. strophanthi (1 : 10), ung. acidi borici (1:10 paraffin ointment), vin. condurango (1:10 sherry wine).

The Latin Grammar of Pharmacy and Medicine. By D. H. Robinson, Ph.D., Professor of Latin Language and Literature, University of Kansas. With an introduction by L. E. Sayre, Ph.G., Professor of Pharmacy in, and Dean of, Department of Pharmacy, University of Kansas. Philadelphia: P. Blakiston, Son & Co. 1890. Pp. 271.

We hasten to note the appearance of this work which has just been published and to which we have thus far been able to give a mere hasty examination, resulting, however, in the conviction that the work is an eminently useful one for the student in pharmacy and in medicine. It is in fact a grammar intended for teaching the Latin language with direct application to the necessities of the physician and pharmacist. The difficulties of such an undertaking are readily appreciated by the philologist, even though they be unknown to, or not valued by, those directly interested. Numerous terms, unknown to classical Latin, have been introduced into science, and such terms—many of them derived from the Greek—have been utilized by the author for teaching the rules of grammar and constructing the exercises for the student. Among these exercises there will be found a large number of formulas and prescriptions taken from Pharmacopœias and from the writings of various authors on medical matters. The vocabularies attached to the work constitute likewise one of its valuable features; in our opinion it would be an improvement to merge the index of suggestive derivations into the Latin-English vocabulary, which contains already quite a number of terms similar in derivation to the former, or which were unknown to classical authors. Perhaps of equal importance to the ancient meaning of the word "populus," given on p. 239, is, to the physician and pharmacist, its botanical meaning as "arbor populi." The admission of ancient terms like iris and abies suggests that others of at least equal importance and antiquity might have been honored in like manner, such as pinus, juniperus, salix, quercus, etc. The extension of the vocabulary in the direction indicated would, in our opinion, materially enhance, to the student, the value of this list even if not extended to make it a medico-pharmaceutical dictionary. In relation to the admission of words, it seems to us, they should be given as established by authority, even if the linguist should have ample reason for dis-

senting; in that case we would have on p. 121 "Pharmacopœa Germanica," and on p. 217 "cimicifuga."

We heartily comment the work for its practical methods and for its general correctness showing the experienced scholar and teacher. Students, as well as those advanced in the two professions, for whose special benefit the work has been elaborated, will appreciate the reliable guide offered to them by the author, and more particularly would we recommend its use to those entering upon the threshold of pharmacy or medicine.

The Monist is the title of a new quarterly magazine of philosophy, science, religion and sociology, to be published in Chicago. Among the contributors are mentioned Prof. E. D. Cope, of Philadelphia; Prof. George J. Romanes, of London; M. Alfred Binet, of Paris; Prof. Ernst Mach, of Prague; Max Dessoir, of Berlin; Dr. Paul Carus, of Chicago; Prof. Joseph Le Conte, Prof. William James, Charles S. Peirce, Prof. Max Müller, Prof. Ernst Häckel, and Th. Ribot.

The foreign correspondence will be furnished for Italy, by Prof. C. Lombroso, the criminologist; for France, by Lucien Arréat, the critic of the *Revue Philosophique;* for the northern countries, by Prof. Harald Höffding, of Copenhagen; for Germany, by Prof. F. Jodl, of Prague, and others.

The magazine will bear a popular character, publishing articles of general interest as well as those of a more special character.

Proceedings of the Seventh Annual Convention of the National Confectioners' Association of the United States, held at Niagara Falls, July 8 and 9, 1890. Official Record of Reports, Circulars and Communications for the year 1889–1890. Philadelphia: Confectioners' Journal Print. Pp. 125.

The pamphlet is about evenly divided between the "Proceedings" and the "Record." As a matter of course much attention is given to reports and laws concerning food adulteration.

VARIETIES.

Potassium iodide has been given by Wölf (*Revue de Thérapeutique*) in doses of from 30 to 50 gm. daily in obstinate cases of tertiary syphilis. It is dissolved in a decoction of rice in order to prevent iodism. The same salt was also given in large doses in a case of psoriasis by Dr. Stenhouse (*Med. Chron.*, August, 1890, p. 410), who administered to a young lady 100 ounces of potassium iodide from March 8 to August 3, the largest doses being 210 grains three times a day. Its influence over the psoriasis did not appear until 360 grains were taken daily.

Poisoning by Male Fern.—The *Wiener Klin. Wochensch.* reports the case of a child 5½ years old, to whom two drachms of the oleo-resin were given in three doses within one hundred minutes. In an hour and a half part of the tapeworm was expelled, then vomiting occurred, and somnolence, followed by twitching, sopor, and trismus, of ten minutes' duration, ending in death five hours after the last dose of the extract.

Salicylic acid has been advantageously employed in dysentery by Cimbali (*Internat. Klin. Rundschau*). It was administered every four hours in doses of 0·5 gm., combined with 0·01 to 0·015 gm. opium.

Atropine as an antagonist to chloroform was recommended many years ago by Albertoni, and his results were recently confirmed by others. Dr. L. Vincini (*Centralbl. f. Klin. Med.*) reports success, only failing after the administration of such large doses of chloroform as to produce coagulation of the heart tissue. As a prophylaxis in chloroform anæsthesia, the subcutaneous injection of 0·002 gm. of atropine is recommended, about one-half that quantity for children, and double the dose in cases of emergency.

The Inefficiency of Sand Filters.—Drs. Fränkel and Piefke, of Berlin, have recently made an exhaustive study on the filtration of drinking-water through sand (*Zeitschrift für Hygiene*, No. 1, 1890). Their experiments conclusively prove that the danger of infection from impure water is only slightly reduced by filtration through sand; bacteria passing through at all times, but in larger numbers just after the filter has been cleaned, and again after it has been in use for some time.—*Med. News*, May 10.